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LEVEL II 2

AIR FORCE HUMAN RESOURCES LABORATORY

LEARNING STRATEGY TRAINING MATERIALS:
A SELECTED SUBSET

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Materials contained within this report are designed to assist learners in the acquisition and subsequent practice of primary and support learning strategies. Primary strategy materials are grouped into (1) comprehension and retention and (2) retrieval and utilization. Support strategy materials include (1) goal setting, (2) concentration management, and (3) information monitoring-feedback. The current practice materials and methods are an outgrowth of experimental approaches to the design, development and validation of a learning strategies training program. Some of the strategies have been shown to increase learner achievement as much as 43% over control groups.

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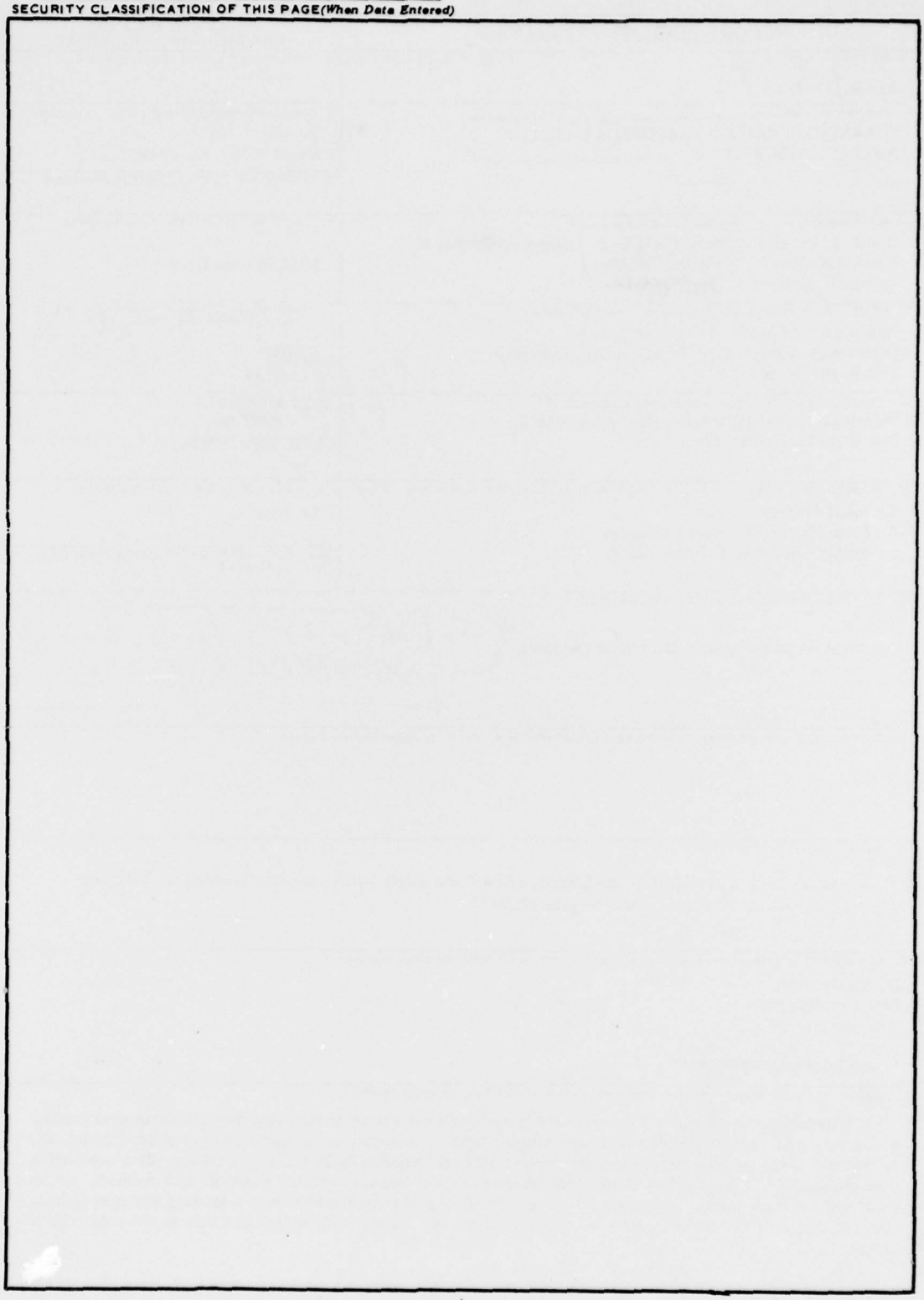

SUMMARY

Our major goal has been to develop and assess an effective learning strategy training program. We believe that such a program would be valuable in reducing training time and increasing training effectiveness in both military and civilian contexts.

This report contains a selected subset of the training materials used in our research and development efforts. In creating these materials we have viewed the learner as engaging in a complex system of activities, each requiring a particular strategy or set of strategies. The training materials are designed to provide the student with techniques dealing with each aspect of the learning situation. These materials can be categorized as follows: Those dealing with the primary strategies of comprehension/retention and retrieval/utilization and those dealing with the support strategies of goal setting/scheduling, concentration management, and monitoring. Research and strategies validation data are contained in AFHRL-TR-78-63, Systematic Training Program for Enhancing Learner Strategies and Skills: Further Development. The data indicate that we are successful in constructively altering college-age students' learning behaviors and attitudes.

PREFACE

This report contains a selected sub-set of learning strategy training materials developed under Project ARPA #3204. Dr. Gerald Deignan, Air Force Human Research Laboratory at Lowry AFB, was the Project Scientist and Dr. Harold O'Neil, Advanced Research Projects Agency, was the Program Manager. Their continuing support and suggestions greatly facilitated the development of these materials.

The work reported in this document was conducted under the provisions of Contract Number MDA 903-76-C0218 with Texas Christian University, Fort Worth, Texas 76129. Dr. Donald F. Dansereau was the Principal Investigator. This research is based upon previous work reported by the contractor under Contract F41609-74-C-0013 in AFHRL-TR-75-41, Effective Learning Strategy Training Program: Development and Assessment.

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INTRODUCTION

This document contains training materials used in conjunction with an assessment of a recently developed learning strategy system (see Dansereau, Collins, McDonald, Diekhoff, Garland, Holley, Evans, Irons, Long, Walker, Hilton, Lehman, Halemanu, Ellis, Fenker, 1978 for further information). This assessment indicated that the strategy training had a positive impact on the learning behaviors and attitudes exhibited by a group of college-age students. Due to the large amount of training materials employed in the assessment only a subset are included in this report.

The training materials presented in this document are associated with two general categories of strategies: primary and support. The strategies falling into each of the general categories will be described briefly.

The Primary Strategies

The primary strategies are those used by the student in operating directly on the material. These include the following:

Comprehension and retention. Our primary goal in this case has been to develop a set of strategies that will assist the student in understanding, transforming and elaborating incoming material in a way that increases conceptual connectivity. The premise is that the more connections or relationships between concepts, objects, ideas or actions that individuals discover or create the deeper their understanding, the greater the retention and the more likely they will be able to retrieve the material under a variety of circumstances. (See pages 9-66)

Retrieval and Utilization. The target here has been the development of a set of strategies that will assist the individuals in systematically exploring their memory structure for information relevant to the task at hand. In addition, these strategies are designed to aid in organizing the relevant information for communication to others. Generally, the approach has been to translate effective problem solving strategies (e.g., means-ends analysis) into techniques relevant to the retrieval and utilization domain. (See pages 67-70)

Support Strategies

No matter how effective the primary strategies are their impact on learning and utilization will be less than optimal if the internal psychological environment of the student is non-optimal. Consequently, we have attempted to develop support strategies to assist the student in developing and maintaining a good internal state. These support strategies include techniques for goal setting and scheduling, concentration management, and monitoring and diagnosing the dynamics of the learning system.

Goal setting and scheduling. Our discussions with students indicate they do very little systematic planning. This makes it difficult for them to monitor their progress and accurately budget their time. Consequently, many students have difficulty setting and meeting deadlines. We have developed a procedure to assist the student in developing a hierarchy of goals: starting with career goals and proceeding downward to weekly goals. In addition, the students are taught to create weekly activity schedules that are compatible with their goals. (See pages 72-88)

Concentration management. Students report that concentration problems are the biggest barriers to effective studying. These types of problems appear to stem primarily from two sources: non-productive attitudes and ineffective strategies for coping with distractions. We have developed techniques to assist the student in dealing with problems arising from both sources.

With regard to attitude problems, we have developed strategies that consist of a combination of elements from systematic desensitization (Jacobsen, 1938; Wolpe, 1969), rational behavior therapy (Maultsby, 1971, Ellis, 1963), and positive self talk techniques (Meichenbaum and Turk, 1975; Meichenbaum and Goodman, 1971). The students are given experiences and strategies designed to assist them in becoming aware of the negative and positive emotions, self talk and images they generate in facing a learning task. Further, the students are encouraged to evalute the constructiveness of their internal dialogue and are given heuristics for making appropriate modifications.

We have also developed a second strategy based on the fact that students report that they usually spend very little conscious effort in establishing a positive learning state prior to beginning a task. It seems very likely that thoughts and feelings associated with their immediately previous situation will mix with negative cognitions about learning and will be carried over as distractors during task performance. To alleviate this situation the student is trained on a technique that forms the basis of systematic desensitization: Imagination of the anxiety evoking situation during relaxation. In effect, the students are instructed to relax and "clear their minds" by counting breaths, then the individuals imagine a period of successful studying, becoming distracted and successfully coping with the distraction. The students are also encouraged to replace the negative talk and images with more constructive thoughts.

To assist the student in coping with distractions we have developed strategies to supplement or substitute for those typically used. Again, the first step involves awareness training: The students are given experiences and techniques to assist them in determining when, how and why they get distracted, the duration of their distraction periods and their typical reactions to distraction. They are then trained to cope with distractions by using the "attitude" strategies of relaxation and positive self talk and imagery to reestablish an appropriate learning state. (See pages 89-119)

Monitoring strategies. The purpose of these strategies is twofold: first, they serve an executive function in that they control the onset of other components; second, they are designed to assist the students in detecting when their processing is not sufficient to meet task demands so that appropriate adjustments can be made. In general, this set of strategies consists of a prototypical sequence of steps (implementation of the other component strategies) accompanied by periodic self checking. Based on the results of this checking, strategy modifications are made to deal with changing task demands and changes in the internal climate of the learner. (See pages 120-168)

The remainder of this report contains subsets of the two main categories of training materials: primary and support.

PRIMARY STRATEGIES:
TRAINING MATERIALS

Comprehension and Retention

The M.U.R.D.E.R. Process:
A Comprehension/Retention
Executive Routine

MURDER : SIX EASY STEPS TO BECOME AN OVERPOWERING LEARNER

MOOD	(1) GET YOURSELF IN THE MOOD FOR LEARNING.
UNDERSTAND	(2) READ FOR UNDERSTANDING.
RECALL	(3) CLOSE THE BOOK AND RECALL AS MUCH OF THE MATERIAL AS YOU CAN.
DIGEST	(4) OPEN THE BOOK AND RE-PROCESS THE MATERIAL IN ORDER TO DIGEST IT.
EXPAND	(5) EXPAND AND DEEPEN YOUR UNDERSTANDING AND YOUR ABILITY TO RECALL BY ASKING QUESTIONS.
REVIEW YOUR TEST MISTAKES	(6) AFTER TAKING A TEST REVIEW YOUR MISTAKES.

MURDER : SIX EASY STEPS TO BECOME AN OVERPOWERING LEARNER

(Inhale textbooks in a single breath, crush professors with clever insights, and destroy tests with your burning intellect!)

MOOD (1) GET YOURSELF IN THE MOOD FOR LEARNING. HOW?

(a) Find a good TIME (SCHEDULING).

(b) Find a good PLACE (THE HANDWRITING IS ON THE WALL).

(c) Clear your MIND (DON'T DRAG IN THE KITCHEN SINK).

AND

(d) Think positively about what you are going to be doing (IF YOU CAN TALK YOURSELF OUT OF STUDYING, YOU CAN TALK YOURSELF INTO IT).

UNDERSTAND (2) READ FOR UNDERSTANDING.

(a) NOTE difficult places in the material.

(b) Don't worry about trying to remember the material or trying to totally understand difficult portions; following the author's main train of thought is all that is needed at this stage. (SEE THE AUTHOR AS A TOUR GUIDE).

(c) "SPICE" UP THE MATERIAL YOU ARE READING (FORM PICTURES, GET EXCITED, MAKE JOKES).

NOTE: Stop reading after 10-20 minutes or 5-10 pages or when the author shifts topics. This is your PERSONAL decision and is something you will have to EXPERIMENT with in order to decide on the optimal amount to do before stopping.

RECALL (3) CLOSE THE BOOK AND RECALL AS MUCH OF THE MATERIAL AS YOU CAN.

(a) You can write it down (perhaps on the "Free Recall" Worksheet), say it into a tape recorder, or say it to a friend.

(b) To help you recall, use the "Positive Suggestions" on pages 12 and 13 of your "Understanding and Recall" Booklet:

(i) RELAX (Breathing, Muscles, Fantasy).

(ii) IMAGE yourself back in the learning situation

(iii) See if the information relates to something you already know.

(iv) Go back over what you have already recalled to give yourself more ideas

(c) Congratulate yourself on your recall successes.

DIGEST (4) OPEN THE BOOK AND RE-PROCESS THE MATERIAL IN ORDER TO DIGEST IT.

(a) Pay particular attention to the material you didn't recall and the material you didn't understand on your first reading.

(b) Use the methods for solving understanding problems where appropriate (See booklet on solving problems in comprehension if necessary):

(i) IDENTIFY the source of the problem (Word, Sentence, Paragraph, Passage).

(ii) BREAK the problem down into its parts, look at the SURROUNDING information, and go to ANOTHER SOURCE if necessary.

(iii) Make your BEST GUESS.

EXPAND

(5) EXPAND AND DEEPEN YOUR UNDERSTANDING AND YOUR ABILITY TO RECALL BY ASKING QUESTIONS. (See pages 18 and 19 of the "Understanding and Recall" booklet).

(a) Imagine that you could talk to the author. What questions would you ask?

(b) What can the material be used for?

(c) How could you make the material more understandable and interesting to other students?

REVIEW YOUR TEST MISTAKES

(6) AFTER TAKING A TEST REVIEW YOUR MISTAKES. (See "How to Learn from a Test" booklet)

(a) Identify the types of questions you had trouble with.

(b) Locate the source of your difficulty.

(c) Decide on a way of guarding against the same mistakes in the future.

Solving Problems in Comprehension

We've all had the experience of reading a textbook, following the author's flow of thought, and all of a sudden coming across a sentence or paragraph which just doesn't make sense. We usually know we don't understand what the author is saying, yet we don't know what to do about it. Other times we begin to read a text and don't even make it past the first sentence. Sometimes the vocabulary is rough. Sometimes the sentence structure is complex. Many times in college the text is loaded with new concepts or terms related to a specific subject matter (psychology, history, business, literature). What we need is a strategy to help us: (1) identify the problem; (2) gather information to solve it; and (3) check and modify our solution. That's what this unit will offer you.

Actually, these three steps I just mentioned aren't new to you. You probably use them to solve problems you encounter in daily life. For instance, when your boyfriend or girlfriend is in a bad mood, you may try to find out why (identify the problem), try to find out what could get him or her out of the bad mood (gather information), and check his or her mood, making sure that the problems which led to the bad mood don't come up again (check and modify the solution). You have also used these steps in the previous two weeks of this course. You identified your goals, decided upon the skills you needed to achieve your goals, and will check your progress from time to time during this semester.

The three steps involved in this strategy may not always lead you to the solution, but they certainly bring you closer to a solution than other strategies do. Let's look at some of the common strategies people employ when faced with a problem. We have identified three: (1) Ignore the problem; (2) Stumble into it; and (3) Apply a strategy which works but is inefficient. You may recognize yourself as a user of one or more of these strategies. What are some of the consequences of employing these techniques?

When you ignore the problem, you may do so because you've given up trying to solve it. "Flying over" the problem may save you some energy at the time, but probably causes a greater expenditure of energy later on down the line since many small problems mushroom into larger ones.

Stumbling into the problem without a systematic strategy often brings out emotional reactions such as frustration and anger at being caught up in the problem. Emotional reactions generally worsen the problem because you start telling yourself how stupid you are (or how stupid the author is) and thus become distracted from the real problem. Eventually, you give up. Finally, you may apply a strategy, but it may be inefficient. For instance, you may have a strategy consisting of several behaviors you go through before shooting a free throw in basketball. You do well at this but you're not sure just what you're doing that is working for you. Is it wearing your special pair of socks? You're afraid to change anything you do because what you change may be the very thing that's causing you to do well. This often happens when we study. We engage in a lot of "superstitious" behaviors like reading the chapter several times because we <u>always</u> do that and we <u>always</u> do well on the test. Can you identify superstitious behaviors you engage in during studying? Maybe you recopy your notes several times. Maybe you take "notes" as you read, copying the text word for word onto your paper! These activities take a lot of time and energy away from learning. We have created the present strategy to enable you to identify what you need to do (where you need to put your energy) and evaluate how well you do it.

In this week of class, we are going to ask you to confront one of the most difficult problems you encounter: reading comprehension. The general problem solving technique is not going to enable you to understand <u>everything</u> you read. However, if you identify something you don't understand and work on it, you will know a lot more about the topic than had you just read over the material two or three times, not understanding the material any better on the third reading than the first. Why should we expect to learn anything by re-cycling the same material through our system in the very same way? We learn by moving the material away from the author's words and into our own words and experience. You can improve your understanding by following the simple steps we will outline for you. You may not understand the material <u>completely</u>, but having applied the strategy could mean the difference between being able to answer a test question or not. For example, when faced with a multiple choice question, you usually can eliminate one or two of the choices. Chances are you will be able to

eliminate the third wrong option with the additional information you've gained from working with the material. Further, if you've worked with some material that you can't understand and know it's going to be on the test, you can always memorize it as a last resort.

We want you to remember that any one particular problem may be too difficult to solve at this point in time--especially since you have not yet learned the comprehension and retention strategies we will be teaching you later in the course. However, we believe that learning and practicing this technique will prove valuable to you in both your learning problems and other problems you encounter. As you learn this technique, remember: we are not interested in perfect solutions. We are interested in your ability to become more proficient at using the technique.

You may be thinking that using this technique will require a lot of time and energy. Well, learning something new always does in the beginning. However, we believe you will find the expenditure worthwhile for the following reasons:

(a) You will learn to apply the strategy automatically as you are reading. (You'll be able to get a quick idea of the problem and what you need to do about it.)

(b) You won't have to use the strategy as often after your reading strategy improves.

(c) Working on one problem may solve others at the same time.

In the next few pages we will describe the problem solving technique in more detail and ask you to apply it to some text material.

Step 1: Identify the Problem

The first thing we want you to do is read a passage and note the places where you don't understand what you're reading. Just read the text as you normally would except mark anything you don't understand with a question mark,

a circle, an underline or bracket. If you want to be more specific, write questions or comments in the margins. Feel free to mark the text in any way that will help you keep track of your problems with understanding. For example, you may not understand some of the words and so you might circle or underline them. You may have trouble with one sentence and might underline it. You may not understand how the sentences in a paragraph relate to one another so you might put the entire paragraph in brackets. Finally, you may not understand how the paragraphs relate to the topic of the passage. Here, you might want to write a specific comment to that effect. You may not always know whether or not you understand something. We've asked students how they know when they understand something. These are the kinds of things they said: (a) I understand when I can see images of what the author is describing; (b) I understand when I can put what the author is saying into my own words; (c) I understand when I can relate what I am reading to what I already know. You might use some of these criteria. Action: Now, go read and mark the passage we have instructed you to read.

Now that you have read the passage and marked your problems, we would like you to re-read and see if any of the problem areas have cleared up from having read the entire passage. The technique of using information gleaned from the whole to understand the part is a very important aspect of this unit. An example of the usefulness of doing this is illustrated below. You might not recognize the nose until you see it

First view

Later view

within the context of a face! So, please re-read and indicate what problems have been cleared up from having read the entire passage.

Action: Re-read and re-evaluate problem areas.

Now that you have re-read the material, you are ready to choose one problem area to which you will apply the problem solving strategy. You may choose one word, one sentence, one paragraph or the passage as a whole to work on. Before you choose a problem, let us give you some guidelines for knowing what kinds of problems you might have and how you should proceed to work on them. Please read the following list of problems.

Common Problems in Understanding

(1) Word - not understanding what a word means. May be a technical word, unfamiliar word, or a familiar word used in an unfamiliar way.

(2) Sentence - not understanding the meaning of an individual sentence. May be due to the arrangement of the words (sentence structure) rather than the meaning of the words themselves (vocabulary). May be difficult to identify the subject or the topic of a sentence. Note: If you understand an individual sentence (its words, structure and topic) but don't understand how it relates to the paragraph, consider this a paragraph problem.

(3) Paragraph - not understanding what a paragraph means. May be due to not being able to understand how the sentences relate to the topic of the paragraph. May be due to not being able to determine the topic of the paragraph. May be due to not being able to relate the topic of the paragraph to the passage as a whole.
Note: Do not work at the paragraph level until you have understood each sentence in the paragraph. You should have worked at the word or sentence level before moving to the paragraph level if you had any problems

with individual words or sentences. In short, come to the paragraph level only after having understood each individual sentence in the paragraph.

(4) Passage - not understanding the theme/themes of a passage. May be due to not knowing the topic of the passage. May be due to not understanding how the individual paragraphs relate to the topic of the passage.
Note: Come to this level only after you understand each individual paragraph.

Now, go back to the passage and choose one problem area. (We will work with only one problem area at a time, but you can go through the system as many times as you need to solve each of your problems. You may discover, however, that working on one problem clears up others.) Use the list of problem areas to guide you in selecting the appropriate level of material to begin work on. For instance, don't begin at the paragraph level unless you understand each of the individual sentences within the paragraph. Don't choose a sentence unless you understand the individual words of the sentence.

Action: Choose a problem area from the parts of the material you marked. Check the category of problem on the list which best represents your problem. Use the comment space to describe your problem more specifically.

Common Problems in Understanding

(1) Word - not understanding what a word means. may be a technical word, unfamiliar word, or a familiar word used in an unfamiliar way.

Comment: _____

_____

(2) Sentence - not understanding the meaning of an individual sentence. May be due to the arrangement of the words (sentence structure) rather than meaning of the words. May be difficult to identify the subject or topic of the sentence.

Comment: _____

_____

(3) Paragraph - not understanding what a paragraph means. May be due to not being able to understand how the sentences relate to the topic of the paragraph. May be due to not being able to determine the topic of the paragraph. May be due to not being able to relate the topic of the paragraph to the passage itself.

Comment: _____

_____

(4) Passage - not understanding the theme (or themes) or the passage. May be due to not knowing the topic of the passage. May be due to not understanding how the individual paragraphs relate to the topic of the passage.

Comment: _____

_____

Step 2: Gather Information

Now that you have identified your problem, you are ready to gather information to help you solve it. We have identified three ways to gain information on your problem:

1. BREAKDOWN - Looking at the parts to understand the whole.

   One way you may decide to work on your problem is to take apart the word, sentence, paragraph, or passage to determine its meaning.

2. SURROUND - Looking at the whole to understand the part.

   Another way you may work on your problem is to look at what surrounds the problem area (surrounding words, sentences, paragraphs, or passages).

   Begin as close to the problem as possible (the closest thing you understand) and work in to the problem. If this information doesn't help, go to the next closest part you understand. Continue this process.

3. OTHER SOURCE - Looking at another source to understand the part or whole.

   You may choose to work on your problem by going to another source. This may be the dictionary, another textbook, the professor, or a fellow student.

You should proceed in the above order as you gather information on a problem. Begin by breaking down the problem into its parts. Next, move to Surround in order to glean more information from the material which is near the problem area. You can also use Surround information to check your solution to the problem. You can do this by checking to see if what you have guessed the author means fits with what the author says in other parts of the material. Finally, go to another source of information if necessary.

The following chart will illustrate the four problem areas and the three ways to gather information.

PROBLEM

Ways to gather information	WORD ⟶	SENTENCE ⟶	PARAGRAPH ⟶	PASSAGE
BREAKDOWN				
SURROUND				
OTHER SOURCE				

Now that you've been introduced to the three strategies for gathering information, go to the worksheet on the following page. You will notice that there is one worksheet per problem (word, sentence, paragraph, or passage). Use the one that represents your particular problem. (You will note that additional information on solving your particular problem is attached to the end of each worksheet. You should read the attachments to make sure you're using all the information available to you.) Action: go to the appropriate worksheet/worksheets and begin working on your problem. After you have worked on your problem, make your best guess as to what the problem area means following the directions on the worksheets. Go back through the passage and look for additional information. Guess as many times as you like (pencil would be advisable!) You may need to be risky! It's better for you to guess and be wrong now than at the time of the test! Eventually, you may feel kind of an "Oh, Yeah!" experience from guessing correctly.

Place your final Best Guess in the appropriate row of the worksheet.

(1) **Identification of the Problem:**

WORD PROBLEM

____
WRITE THE PROBLEM WORD HERE

*NOTE: See attached pages for more information on this problem

##

(2) **Gathering of Information:**

(To do: Break the word apart. See lists of prefixes and suffixes attached.)

BREAKDOWN

________	________	________
prefix	root	suffix

(To do: Use information in other parts of the paragraph to define the word. *See appendix.)

SURROUND (immediate)

________	________	________
synonym	example of word	other words related to problem word

-*-

(To do: Use information on other parts of the passage to define the word. *See appendix.)

(farther)

________	________	________
synonym	example of word	other words related to problem word

(To do: Look up word)

OTHER SOURCE

Glossary: ______________________

Dictionary: ______________________

@@@

(To do: Guess the meaning of the word by re-writing the sentence in your own words.)

BEST GUESS:

///

When you have finished your work on the problem, go to page 36 where you will be instructed on step 3 (below).

##

(3) **CHECK and CORRECT**

(To do: Write your evaluations and the changes you intend to make.)

Your best guess:

Your problem solving strategy:

Your reading technique:

WORD PROBLEM BREAKDOWN

HOW TO DETERMINE WHAT A WORD MEANS

Common Prefixes
(make up 82% of total no.)

com- (with) ex: comfort (with strength)
re- (back) ex: return (bring back)
ad- (to) ex: adjunct (join to)
un- (not) ex: unfavorable (not favorable)
in- (into) ex: inject (to send into)
in- (not) ex: invalidate (to make not valid)
dis- (apart) ex; disjointed (joints are apart)
ex- (out) ex: expire (breathe out)
de- (from) ex: depart (leave from)
en- (in) ex: enrage (to put in a rage)
pro- (in front of) ex: promotion (move in front of)
pre- (before) ex: prejudice (before judgement)
sub- (under) ex: subconscious (under the conscious)
be- (by) ex: behind (by the hind)
at- (from) ex: attract (to draw from)

Common Suffixes

-al (relation to)
ex: literal (relation to the letter)

-ance (state of being)
ex: compliance (state of complying)
-ate (one who)
ex: literate (one who reads and writes)
-ate (to make)
ex: articulate (to make a sound)
-cion (action)
ex: coercion (the act of forcing)
-est (comparison)
ex: largest (comparison of size)
-ian (relating to)
ex: amphibian (relating to Amphibia)
-ic (like)
ex: cyclic (like a cycle)
-lous (abounding in)
ex: credulous (abounding in belief)
-ize (to make)
ex: commercialize (to make commercial)
-ism (act of)
ex: cannabilism (act of being cannibal)
-less (without)
ex: meaningless (without meaning)
-ness (state of being)
ex: happiness (state of being happy
-ster (one who)
ex: gangster (one who is in a gang)
-ure (act of process)
ex: architecture (process of being an architect

WORD PROBLEM (cont.)

SURROUND

Look through other parts of the passage for clues as to the meaning of the problem word. Look for:

1. a synonym - the author may define the word by using another word which has a similar meaning.

2. an example - the author may give you an example of the word. You may be able to define the word based on this.

3. other words - the author may give you clues to the meaning by words throughout the passage.

OTHER SOURCE

Look through a glossary or dictionary. Use care in selecting the appropriate meaning. Use dictionaries for special content areas (psychology, business, biology). The dictionary (general) does not contain all the technical terms of a given area.

For additional aid, see Programed College Vocabulary 3600, (Feinstein, 1969). Using this text should increase your vocabulary!

(1) **SENTENCE PROBLEM**

*NOTE: See attached pages for more information on this problem

Identification of the Problem: ________________________________
WRITE THE PROBLEM SENTENCE HERE

##

(2) Gathering of Information: BREAKDOWN

(To do: Break the sentence apart in terms of subject-verb or topic and comments, or parts and connecting words.) See attached sheet for help.

________ subject ________ verb ________ other

________ part 1 ________ connecting word ________ part 2

________ topic ________ comments on topic

SURROUND

(To do: Use other sentences in paragraph to clarify sentence. Use topics of paragraph of other sentences to clarify sentence.) See attached sheet.

(immediate)

-*-

(To do: Use information in the passage to clarify sentence.) See attached sheet.

(farther)

OTHER SOURCE

(To do: Use information from other texts or other people to clarify sentence).

@@

BEST GUESS

(To do: Re-write sentence in your own words).

//

When you have finished your work on the problem, go to page 36 where you will be instructed on step 3 (below).

##

(3) Check and Correct

(To do: Write your evaluations and the changes you intend to make.)

Your best guess:
Your problem solving strategy:
Your reading technique:

Sentence Problem

BREAKDOWN

Subject-Verb - Many people have trouble determining the subject of the sentence. Word order is the significant clue. The subject is most often at the beginning of the sentence. It is generally followed by the verb which is the focus of comment about the subject.

Ex: The quitquib mobbled a bossem.

clue	verb	clue
means noun follows	ending	looks like an object

Connection Words: - Words provide clues as to how two parts of a sentence are related.

Ex: part 1 There is growing evidence that no significant growth in personality is possible after age 33 since (connecting word)
part 2 the ego is established by that time.

In this example, the connection word since means because. The sentence means that no growth in personality takes place because the ego...etc. The next task in understanding is to know why the ego's being established causes no growth. We're all familiar with connective words but we often don't attend to the information they give us. Words such as However tell us something is going to be said which is not in line with what was just discussed. Keep track of these words.

SURROUND

Referents - A pronoun is often used to refer to a word used in a previous sentence. Keep track of what each pronoun (she, it, this) is referring to!

Topics - The author may continue the same topic or a related topic from sentence to sentence.

Example: The philosophy (topic) was accepted by few.
In the conflict between factions, the philosophy (topic) was predominant.
Secondly, each of the two factions (topic) dominated the two major political parties.

(1) Identification of the Problem

PARAGRAPH PROBLEM

(WRITE IT OUT IF YOU NEED TO)

*NOTE: See attached pages for more information on the problem.

##########

(2) Gathering of Information

BREAKDOWN paragraph into sentences:

(To do: Write the main idea expressed in each sentence. What is the author telling you? Organize these ideas in an outline or according to our guidelines - see attached page. Extract the meaning of the paragraph from the sentences.)

SURROUND

(To do: Use information from other paragraphs to add information.) Determine how this paragraph relates to the rest of the passage. You need to determine the theme of the passage and relationships between paragraphs and theme. See attached page.

OTHER SOURCE

(To do: Use information from other texts or talk to someone else.)

@@@@@@@@@@

BEST GUESS

(To do: Write the paragraph in your own words or outline it)

//////////

When you have finished your work on the problem, go to page 36 where you will be instructed on step 3 (below).

##########

(3) CHECK and CORRECT

(To do: Write your evaluations and the changes you intend to make.)

Your best guess:

Your problem solving technique:

Your reading technique:

PARAGRAPH PROBLEM

If you have already determined the topic or main idea of the paragraph, but don't know how the sentences relate to the main idea, use the guidelines below.

If you have not determined the topic or main idea of the paragraph, the following guidelines may give you some clues. Use guidelines on the following page, too.

HOW ARE SENTENCES RELATED TO THE TOPIC (MAIN IDEA) OF THE PARAGRAPH

1. The sentence may re-state the main idea of the paragraph in different words.

2. The sentence may contrast the main idea of the paragraph with another idea.

3. The sentence may give examples of illustrations that support the main idea of the paragraph.

4. The sentence may justify or provide evidence for the principle contained in the main idea of the paragraph.

5. The sentence may be a consequence or implication of the main idea.

6. The sentence may simply describe or qualify the main idea of the paragraph. Thus, it may list specific facts, or give a sequence.

7. The sentence may contain a subtopic (a part of the main idea) for development.

8. The sentence may contain unrelated details which do not belong in the paragraph. Such a sentence should be disregarded.

If you are unable to determine the topic or main idea of a paragraph, use the guidelines below.

FINDING THE MAIN IDEA OF A PARAGRAPH

1. Read the first sentence of the paragraph. It contains the main idea about 80% of the time.

2. If this is the topic sentence, decide what the paragraph is going to be about.

3. See if the rest of the paragraph bears on this topic by skimming for ideas and words.

4. If the paragraph does bear on this topic then it is the topic sentence. Put the idea into your own words.

5. If the first sentence doesn't have the main idea, see if you can find the topic sentence. The next most likely place for it to be is at the end of the paragraph.

6. See if any phrase or sentence expresses a main idea.

7. If the topic sentence can't be found, find some key words or phrases that you can put together to see what they say. Then write an appropriate topic sentence for yourself.

If you have determined the topic of a passage but are unable to relate the paragraphs to it, use the guidelines below.

"Relationship Sheet"

HOW ARE PARAGRAPHS RELATED TO A TOPIC?

1. The paragraph may re-state the main idea of the passage in different words. In terms of the relationship, the main idea of the passage as a whole and the main idea of the paragraph may be IDENTICAL. Sometimes, two paragraphs say the same thing in different words and thus would share the same main idea.

2. Different paragraphs may contrast the main idea of the passage with other ideas. The paragraphs might compare two ideas, presenting characteristics of each. In short, look for comparisons and contrasts of ideas.

3. Different paragraphs may present examples of the main idea of the passage. A paragraph may talk about a concept which is part of or a type of the concept which is discussed in the passage.

4. Some paragraphs present a principle. Other paragraphs justify this principle. These other paragraphs may present evidence which supports the principle.

5. Paragraphs presenting a principle may also be followed by paragraphs expressing consequences of the actions or ideas stated in the principle. Implications of the principle may be presented.

6. Paragraphs may describe or qualify the main idea.

7. Paragraphs may present and develop subtopics of the main topic of the passage. Each paragraph would thus be related to the main idea by being a part of it.

These seven relationships between paragraphs and the topic of the passage are just seven of many you can determine. They are the major relationships and should guide your search for the author's organization of the material. (Use your skills in outlining, also).

If you are unable to determine the topic or main idea of a passage, use the guidelines below.

HOW TO FIND THE TOPIC OF A PASSAGE

1. Identify the topic of each paragraph.

2. Decide how these topics are related (what information does each paragraph contribute). (See your relationship sheet on the previous page.

3. Write a general statement that includes the topics of each paragraph. This is your statement of the topic.

(1) Identification of the Problem

PASSAGE PROBLEM

*NOTE: See attached pages for more information on this problem.

(2) Gathering of Information

(To do: Determine the topic of each paragraph. See attached sheet. Determine topic of passage. Determine relationships between paragraphs and topic of passage.) See attached sheet. Use outlining to organize your ideas.

BREAKDOWN passage into paragraphs

(To do: Look in other parts of text - previous chapter, following chapter, overview, table of contents, summary.)

SURROUND

(To do: Read other texts or talk to someone else.

OTHER SOURCE

(To do: Write an outline of the passage.)

BEST GUESS

When you have finished your work on the problem, turn to page 36 where you will be instructed on step 3 (below).

(3) CHECK and CORRECT

(To do: Write your evaluations and the changes you intend to make.)

Your best guess:

Your problem solving strategy:

Your reading technique:

PASSAGE PROBLEM

If you are having trouble determining the topic of individual paragraphs, use the guidelines below.

HOW TO DETERMINE THE TOPIC OF A PARAGRAPH

1. Read the first sentence of the paragraph. It contains the main idea about 80% of the time.

2. If this is the topic sentence, decide what the paragraph is going to be about.

3. See if the rest of the paragraph bears on this topic by skimming for ideas and words.

4. If the paragraph does bear on this topic then it is the topic sentence. Put the idea into your own words. Pretend you are creating a movie title.

5. If the first sentence doesn't have the main idea, see if you can find the topic sentence. The next most likely place for it to be is at the end of the paragraph.

6. See if any phrase or sentence expresses a main idea.

7. If the topic sentence can't be found, find some key words or phrases that you can put together to see what they say. Then write an appropriate topic sentence for yourself.

If you are unable to determine the topic or main idea of the passage, use the guidelines below.

HOW TO FIND THE TOPIC OF A PASSAGE

1. Identify the topic of the paragraph.

2. Decide how these topics are related (what information does each paragraph contribute). (See your relationship sheets for help.) (Next page).

3. Write a general statement that includes the topics of each paragraph. This is your statement of the topic.

If you need to relate paragraphs to the topic of the passage, use the guidelines below.

"Relationship Sheet"

HOW ARE PARAGRAPHS RELATED TO A TOPIC?

1. The paragraph may re-state the main idea of the passage in different words. In terms of the relationship, the main idea of the passage as a whole and the main idea of the paragraph may be IDENTICAL. Sometimes, two paragraphs say the same thing in different words and thus would share the same main idea.

2. Different paragraphs may contrast the main idea of the passage with other ideas. The paragraphs might compare two ideas, presenting characteristics of each. In short, look for comparisons and contrasts of ideas.

3. Different paragraphs may present examples of the main idea of the passage. A paragraph may talk about a concept which is part of or a type of the concept which is discussed in the passage.

4. Some paragraphs present a principle. Other paragraphs may justify this principle. These other paragraphs may present evidence which supports the principles.

5. Paragraphs presenting a principle may also be followed by paragraphs expressing consequences of the actions or ideas stated in the principle. Implications of the principle may be presented.

6. Paragraphs may describe or qualify the main idea.

7. Paragraphs may present and develop subtopics of the main topic of the passage. Each paragraph would thus be related to the main idea by being a part of it.

These seven relationships between paragraphs and the topic of the passage are just seven of many you can determine. They are the major relationships and should guide your search for the author's organization of the material. Use your outlining skills, also.

Step 3: Checking and Correcting Your Solution & Strategies

You have just made your best guess as to the meaning of the problem paragraph. Now, you need to evaluate your guess. One way to evaluate your guess is to see if what you think fits with the rest of the material. If everything fits and you have kind of an "oh, yeah, this makes sense" experience, you may evaluate your guess as probably right. If you can locate something that runs counter to the meaning you paraphrased, you better try again. If you are really unsure of your guess, state your uncertainty and plan to gather more information as you read further in the text.

You also need to evaluate your problem solving strategy. For instance, maybe you spent too much time on problem definition when you needed to begin at the "word" sheet anyway. Next, evaluate your reading strategy, based on what you've learned about your problems. For example, if you employed a more flexible reading speed would you keep this problem from coming up again? Do you need to keep track of the central idea the author is expressing? Write some suggestions to yourself but don't be frustrated if you are unsure of corrections. Helping you learn how to change your strategies is what the rest of the course is all about.

Do try to incorporate the three strategies - Breakdown, Surround, Other Source - into your ongoing reading as a way to gain information and understanding. Action: Fill out the Check and Correct Row (Last Row on Worksheets).

Epilogue

You may not feel that the worksheets suit your needs. Don't feel obligated to use the sheets all the time. They are merely illustrations of ways to work on problems. You can follow our examples and write in your text or in your notes. For example, if your normal note-taking technique is outlining, you can use your outline to work on paragraph and passage problems. (It should be obvious from working on these problems that keeping track of the author's main idea is a valuable aid to comprehension. Outlining allows you to do this.) Fill out a few worksheets for us to evaluate.

Your ability to use the problem solving strategy is of the utmost importance to us. This general strategy will be used over and over in this course. The main thing we want you to come away from this unit with is the knowledge of a strategy which can be applied to a variety of problems. Further, within this strategy you can gather information in three ways. We'd like to see if you can describe the technique now. Please list the three steps and three ways to gain information on the problem.

Description of Problem Solving Technique:

Purpose:

3 Steps:

(1)

(2)

(3)

3 ways to gain information

(1)

(2)

(3)

Please list 2 or 3 problems (learning and other) to which you could apply the strategy.

You should reward yourself for learning the strategy and attempting to employ it. As we have said, comprehension problems are among the most difficult. After working in this unit you should be more aware of the kinds of problems you have. You can begin working on your problems now - before your exams begin. You may want to continue using the worksheet format or you may want to experiment with your own methods. Also, ask us about any perplexing problems.

Please see the following page for a summary of the technique.

SUMMARY
OF
TECHNIQUE

PROBLEM

	Word	Sentence	Paragraph	Passage
Always begin → Breakdown	Prefix - Root - Suffix	subject-verb parts and connectives topic and comments	sentences relate to paragraph topic of paragraph	paragraphs relate to passage topic of passage
Source of Information - Surround	Synonym Examples Other words	Other sentences in paragraph main idea of paragraph or paragraphs	relationship between the paragraph and other paragraphs topic of passage table of contents, summary	other parts of text
Other Source	Glossary Dictionary	Other texts Other people	Other texts Other people	Other texts Other people
Best Guess				

Networking

Basic link structures

NETWORKING TECHNIQUE

1. READ QUICKLY UNTIL YOU FEEL "FILLED" WITH IMPORTANT INFORMATION - ignore details, unfamiliar terms, names, dates, etc.

   Goals:
   (a) To get a grasp of the "reality" the author is talking about. Form mental "pictures" as much as possible while you are reading. Especially try to visualize actions, or better yet imagine yourself doing them. The key questions are: "Would I recognize what the author is talking about if I saw it?", "Have I seen it before?", "What would happen next?"

   (b) To identify or create link structures ("leads to" chains, part and type/example hierarchies, descriptions/comparisons and combinations of these) that will help you organize and understand the material.

2. DRAW A MAP BY PUTTING DOWN THE APPROPRIATE LINK STRUCTURES - put pictures (reminder sketches) or picture captions in your nodes as much as possible. Avoid putting too much detail in your maps.

   Most of the time it is useful to keep the main theme structures separate from the details (see p. 7 of "Completed Networks" packet). Often "leads to" chains and the hierarchies will serve to represent the main theme.

(REPEAT STEPS #1 AND #2 UNTIL PASSAGE IS COMPLETED)

3. ASK YOURSELF QUESTIONS ABOUT THE MAP(S) TO DEEPEN AND BROADEN YOUR UNDERSTANDING - "To what reality do the nodes refer?","Would I be able to recognize them?", "How do the actions occur?", "Why do the relationships hold?", "What predictions can I make?" (see 1c,2c,3c, 4c of Basic Link Structure Packet)

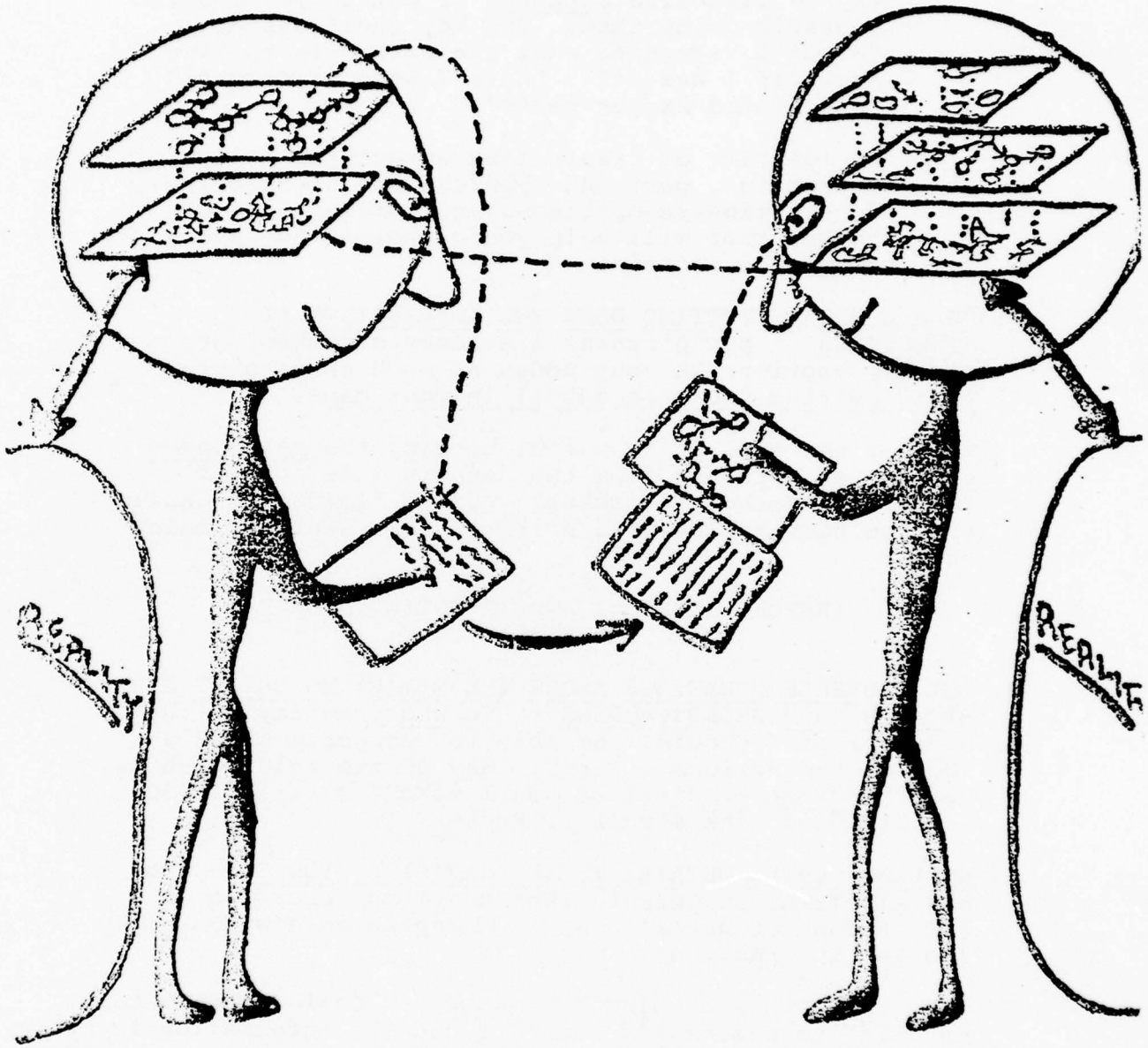
4. RE-READ ADDING DETAILS TO THE MAP(S) AS YOU GO - you may also find answers to the questions generated in #3. Amount of detail added will depend on how you will use the information.

5. TEST YOUR UNDERSTANDING AND MEMORY - "Could I teach this material to someone?", "Could I use the information in my life?", "Am I prepared to take a test over the material?"

(IF YOU DON'T FEEL COMFORTABLE, REPEAT STEPS #3 AND #4; IF YOU DO, MOVE ON!!)

TEACHER/AUTHOR

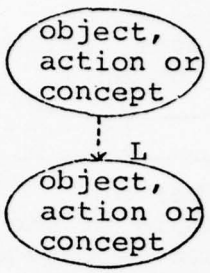
STUDENT



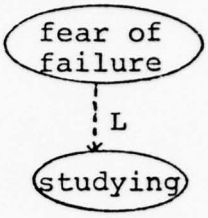
Basic Link Structures

(1) Leads To

(a) The link:



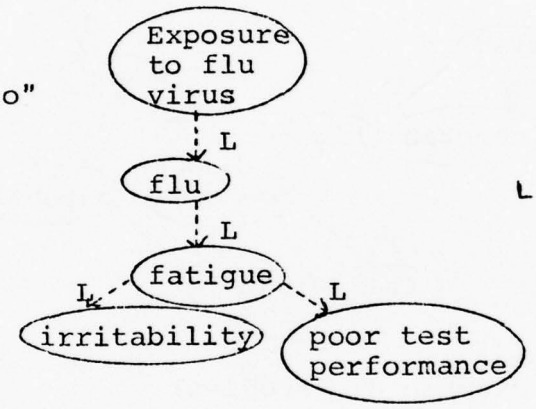
Ex.

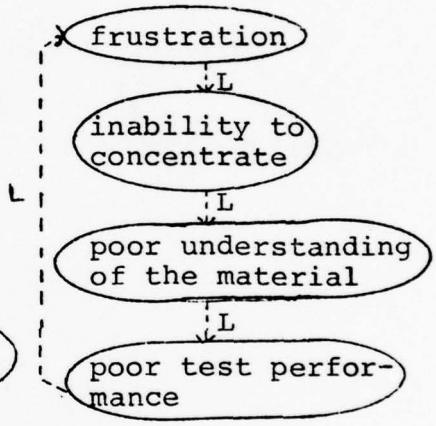


("Fear of failure leads to studying.")

(b) Link structures that are used to organize knowledge:

("Leads to" chains)





(c) Ways of playing with the link structures for deeper and broader understanding:

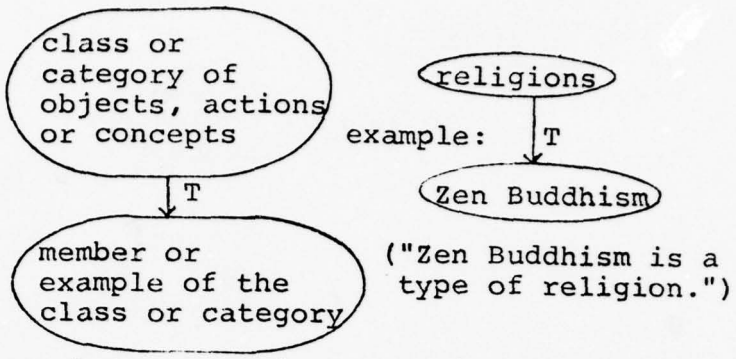
(i) "How does x lead to y?", "Can I see the action?", "Would I recognize it if I saw it?"

(ii) "Why does x lead to y?", "What are the intermediate steps?"

(iii) "What led to the beginning of the chain?", "What is likely to follow?"

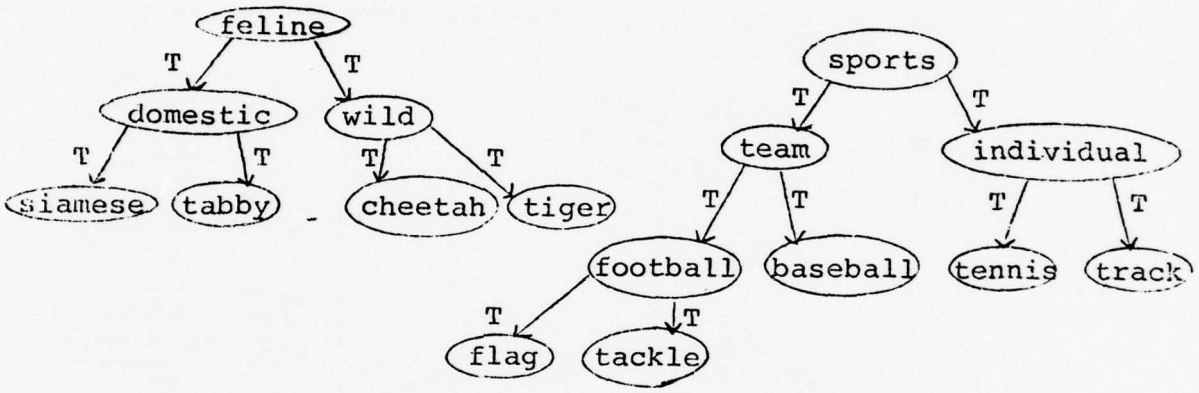
(2) Type/Example

(a) The link:



("Zen Buddhism is a type of religion.")

(b) Link structures that are used to organize knowledge:



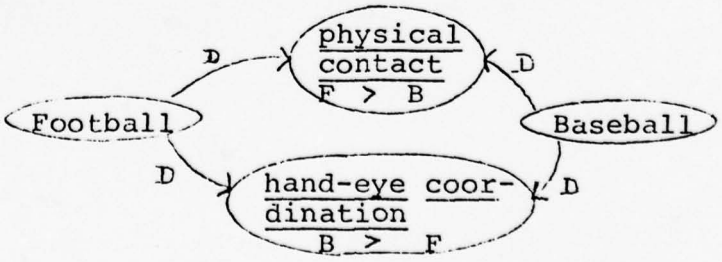
(Type/Example Hierarchies)

(c) Ways of playing with the link structures for deeper and broader understanding:

(i) Read through the hierarchies to increase your understanding of why the concepts, objects or actions are located where they are.

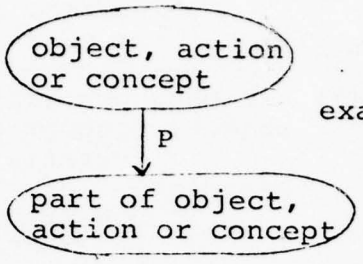
(ii) Make comparisons between concepts, objects or actions located at the same level of the hierarchy.

Example:
(see page 4)

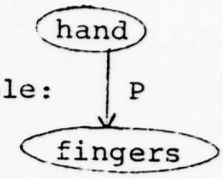


(3) Part

(a) The link:

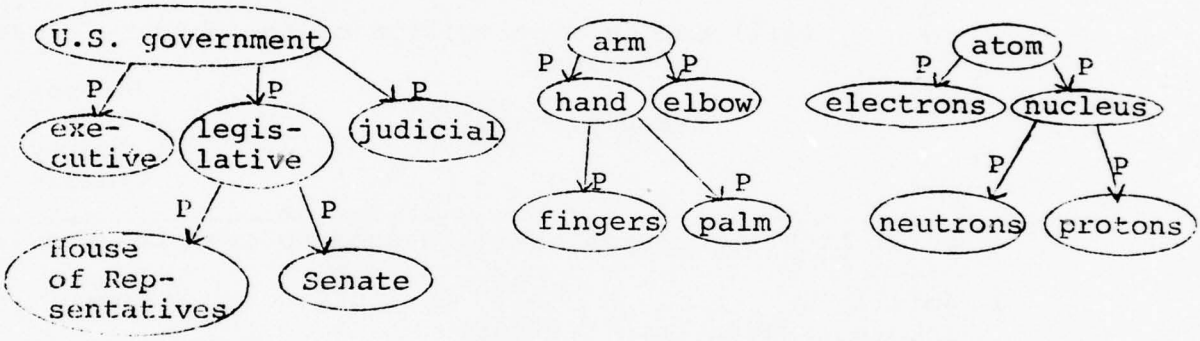


example:



("Fingers are a part of the hand.")

(b) Link structures that are used to organize knowledge:



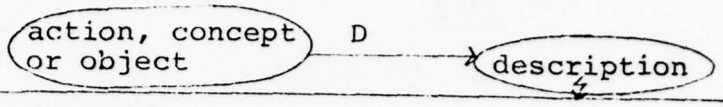
(Part Hierarchies)

(c) Ways of playing with the link structures for deeper and broader understanding:

(see 2c) Also, when possible try to form a "mental picture" of the whole object, concept or action ("Would I recognize it if I saw it?")

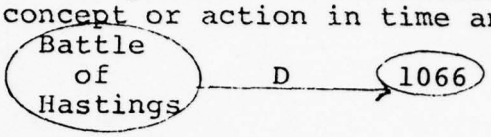
(4) Descriptive

(a) The link:



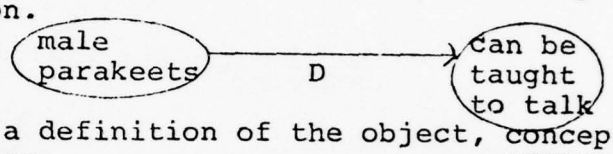
(i) Can be a description of the location of the object, concept or action in time and space.

example:



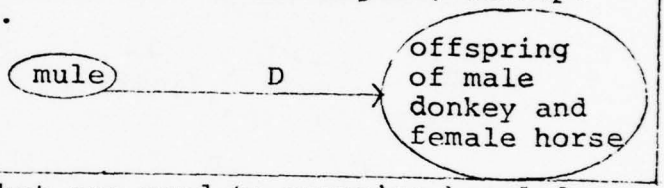
(ii) Can be a description of the actions, intentions and structure of the object, concept or action.

example:

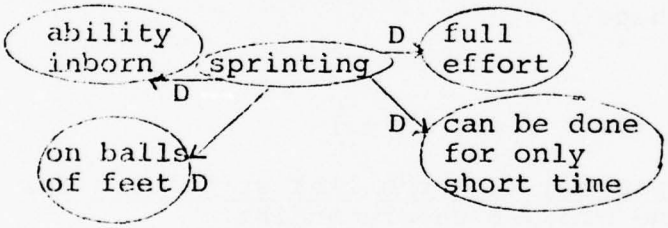


(iii) Can be a definition of the object, concept or action.

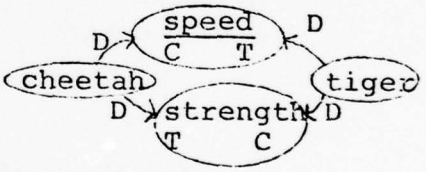
example:



(b) Link structures that are used to organize knowledge:



(Pure Description)



(Comparisons)

(c) Ways of playing with the link structures for deeper and broader understanding.

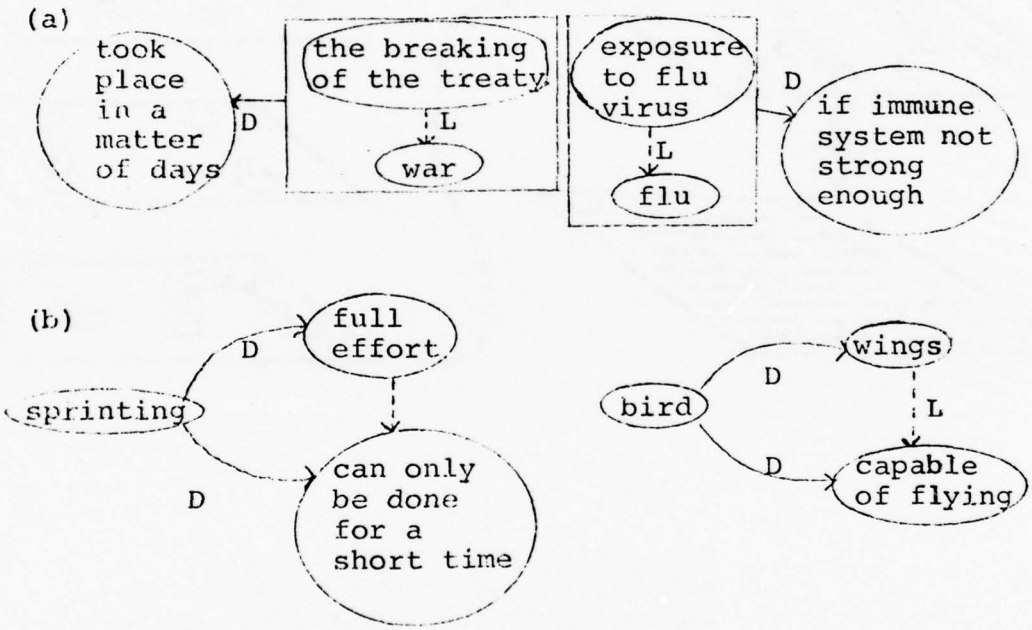
(i) Put information together into "mental pictures." e.g., imagine a race or weight lifting competition between a cheetah and a tiger.

(ii) In a "pure description" look for relationships between the description nodes. e.g., The fact that sprinting requires full effort probably leads to the fact that it can only be done for a short period of time.

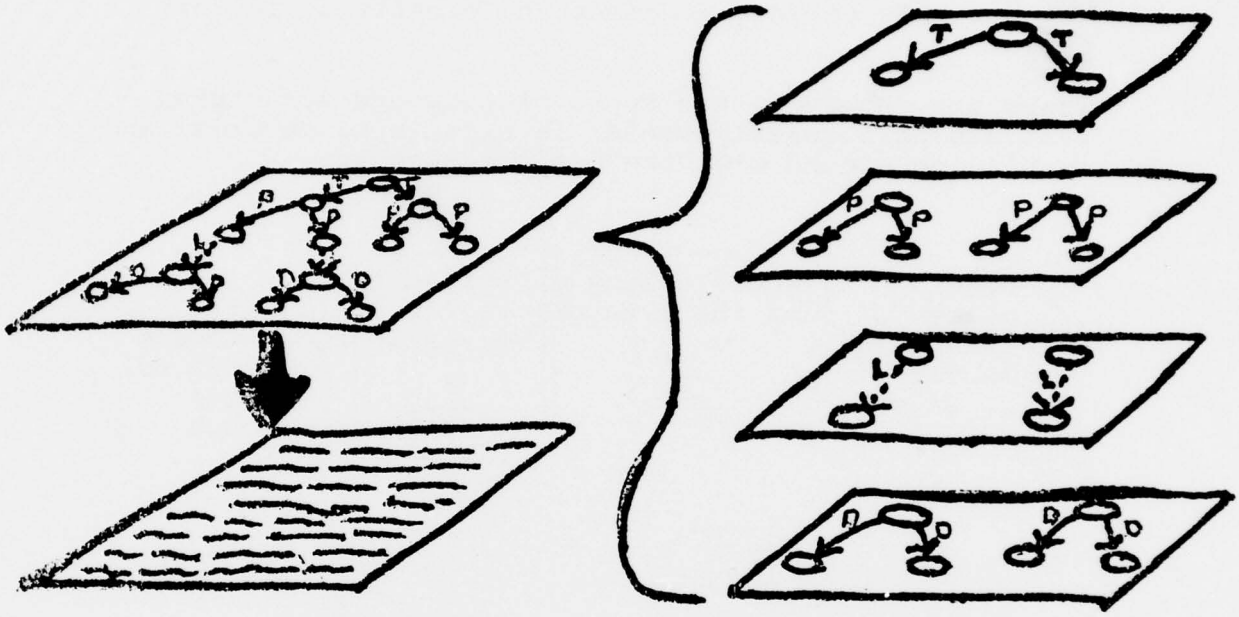
Compound Link Structures

Usually a combination of the basic link structures will be needed to organize a body of material. There are a large number of ways these structures can be put together (you might think of them as "thinkertoys") so you will have to rely on your judgment and creativity in most cases.

There are, however, two types of compound structures that are particularly useful in organizing material and in playing around with the basic structures.



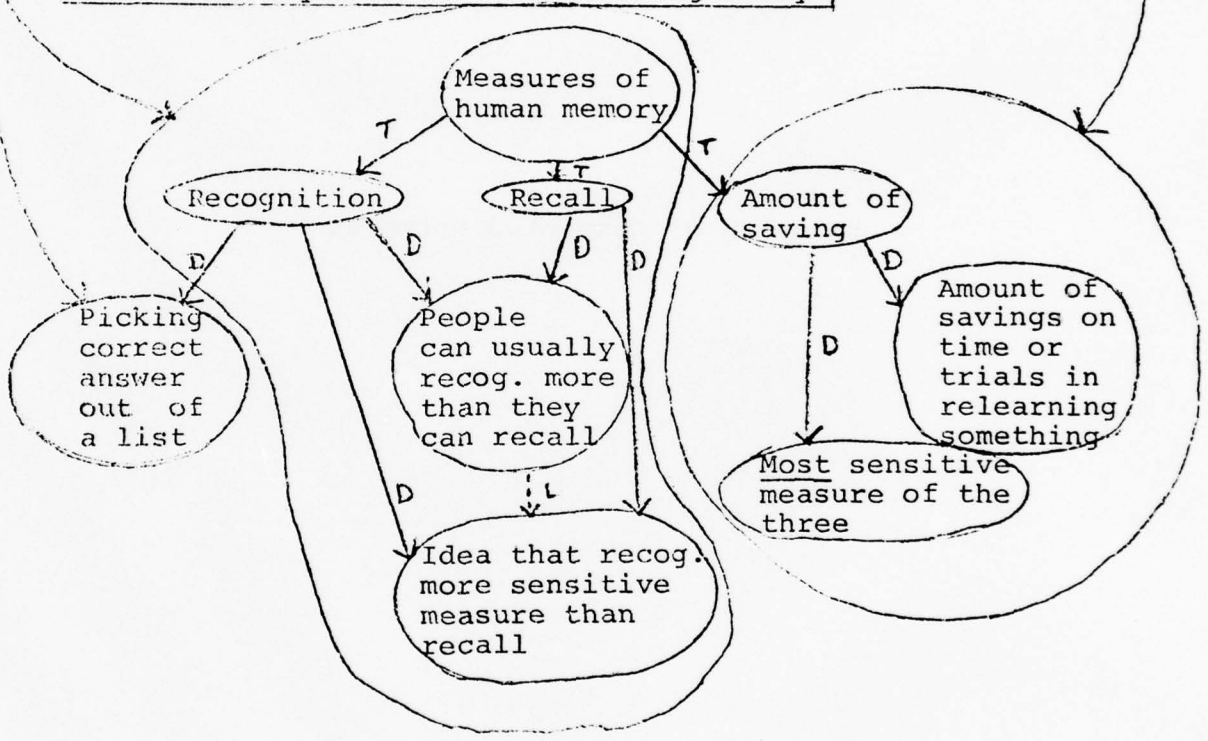
Compound Structures: Often
Created by Layers of Basic Structures



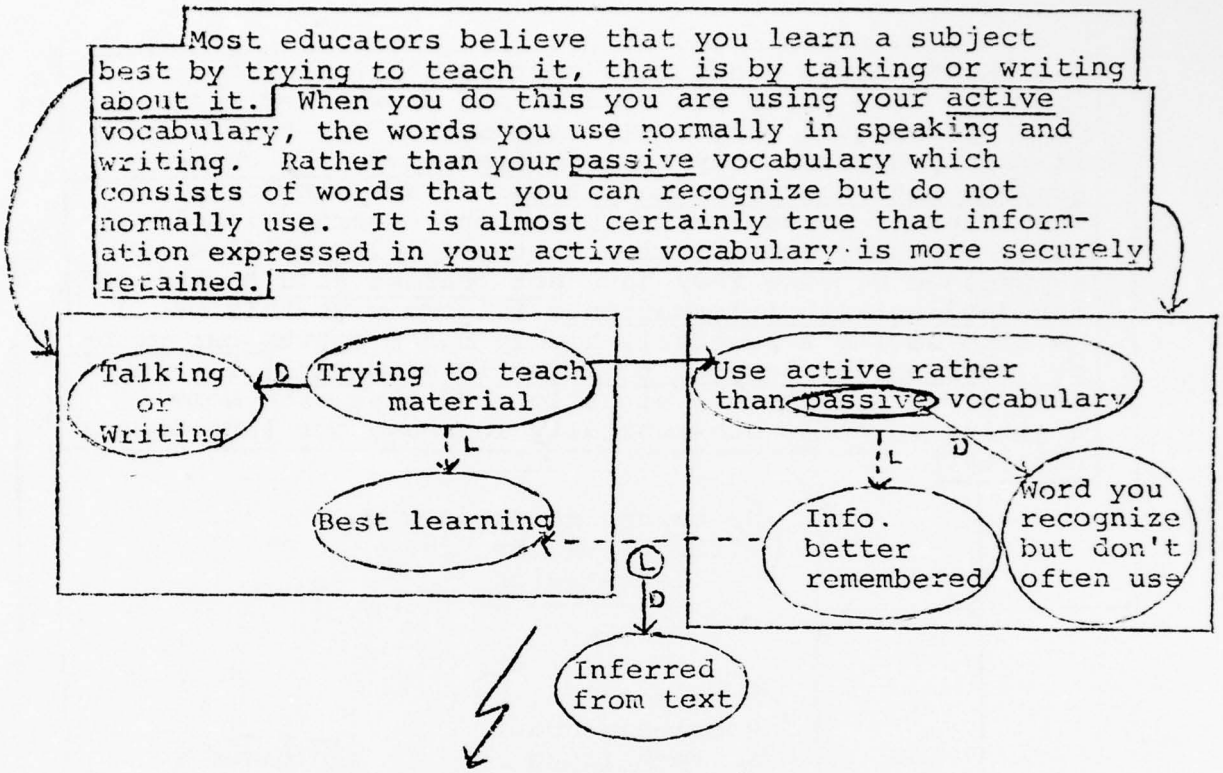
Separating these structures out during studying should improve both understanding and memory.

Examples of Completed Networks

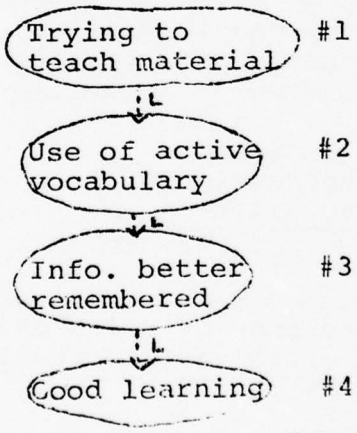
We measure human memory not only by what a person can recall when she is asked to remember something, but also by what she can recognize. Since a person can often recognize an answer which she can't recall, recognition is generally a more sensitive measure of memory. You may not recall Polk or Arthur when asked to name past presidents, but you might still be able to recognize them as past presidents if you were given a list which included those names. A still more sensitive measure of memory is the amount of saving there is in relearning something, when the time or trials required in relearning are compared with the time or trials required to learn it originally.



To deepen your understanding compare and contrast "recall" and "amount of saving." Also, relate these three measures to the types of tests you have to take in school.

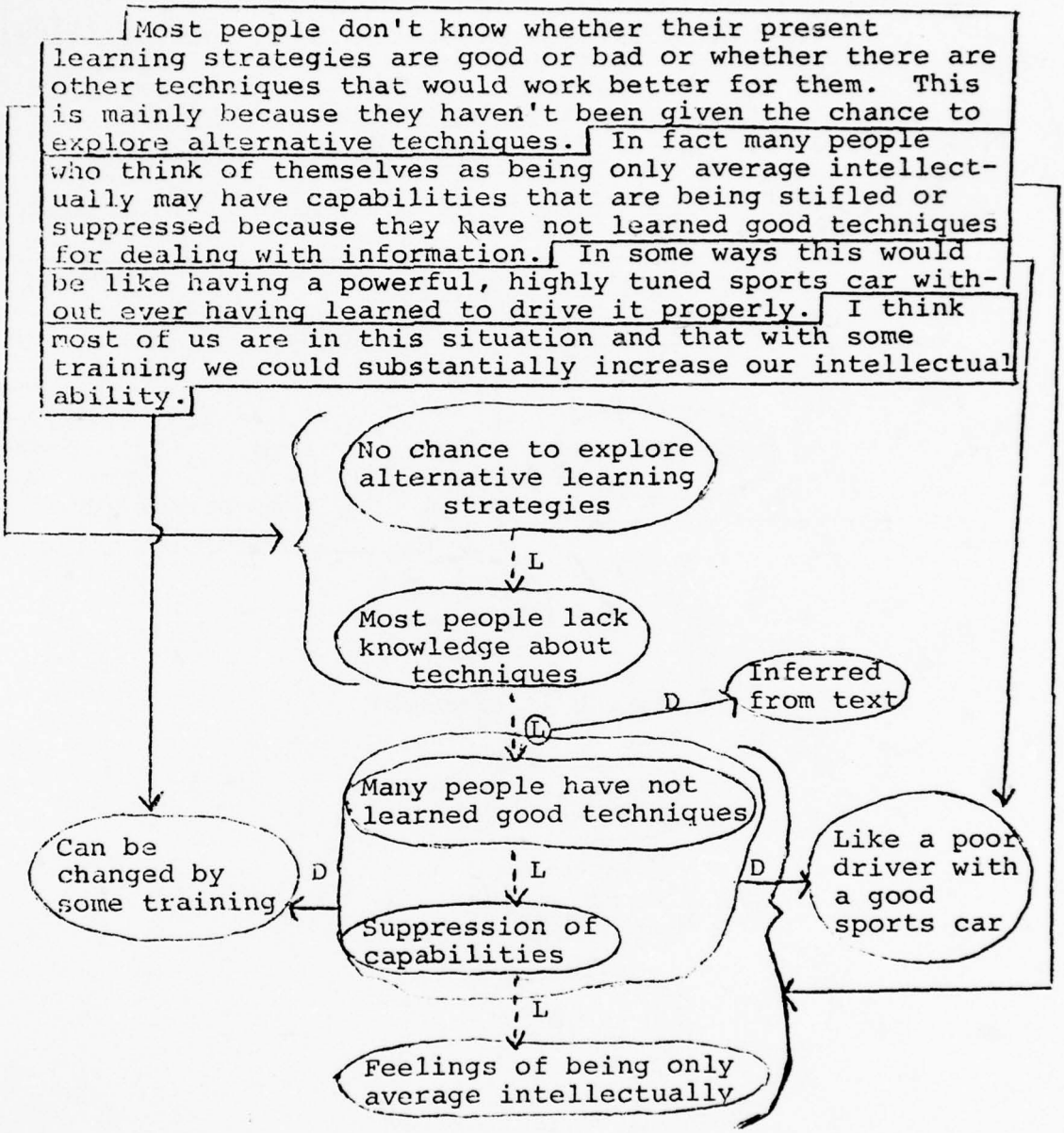


Making it simpler!



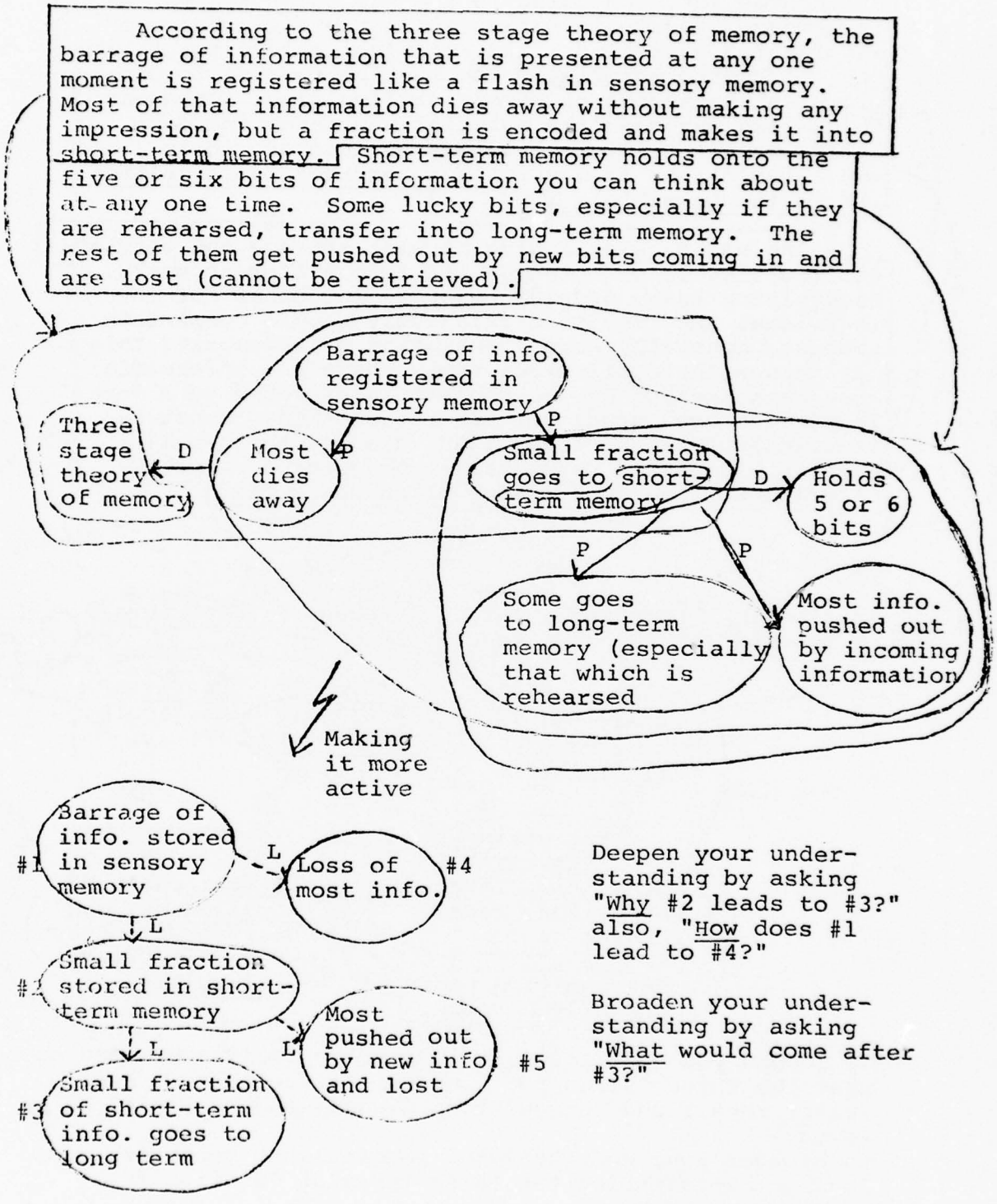
To deepen your knowledge ask: "Why does #2 lead to #3?"

To broaden your knowledge ask: "What node would lead to #1?"



To deepen your knowledge think about why and how the "leads to" links work.

To broaden your knowledge try to predict what might come next in the "chain." Might also guess what came before the first node in the "chain."

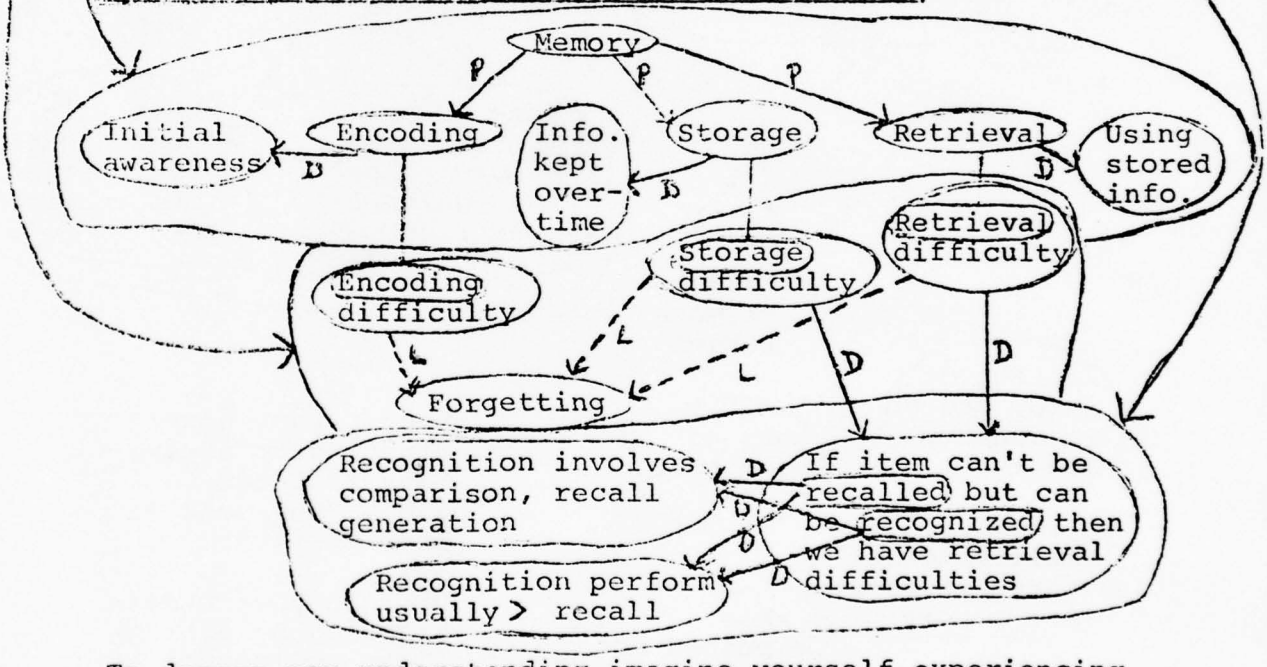


Deepen your understanding by asking "Why #2 leads to #3?" also, "How does #1 lead to #4?"

Broaden your understanding by asking "What would come after #3?"

Memory involves encoding, storage, and retrieval of information. Encoding is the initial registration in memory, storage is reflected in the persistence of information over time, and retrieval refers to utilization of stored material. One must be careful to distinguish the source of memory difficulties. Apparent forgetting may mean the material was never encoded; it may mean the information was not stored (it is unavailable); or it may reflect retrieval difficulties (it is inaccessible).

One way to distinguish between storage and retrieval difficulties is to note results from different tasks. Recognition tasks provide possible responses for the individual and require a relatively simple comparison process; generally more information is remembered this way than with recall procedures, where the information must be generated by the subject (presumably by a more involved search process). So if something cannot be recalled but can be recognized, clearly the recall problem was one of retrieval - recognition shows the material was available, however inaccessible.



To deepen you understanding imagine yourself experiencing what the three "leads to" links might feel like.. Also, relate recall and recognition to essay and multiple choice tests.

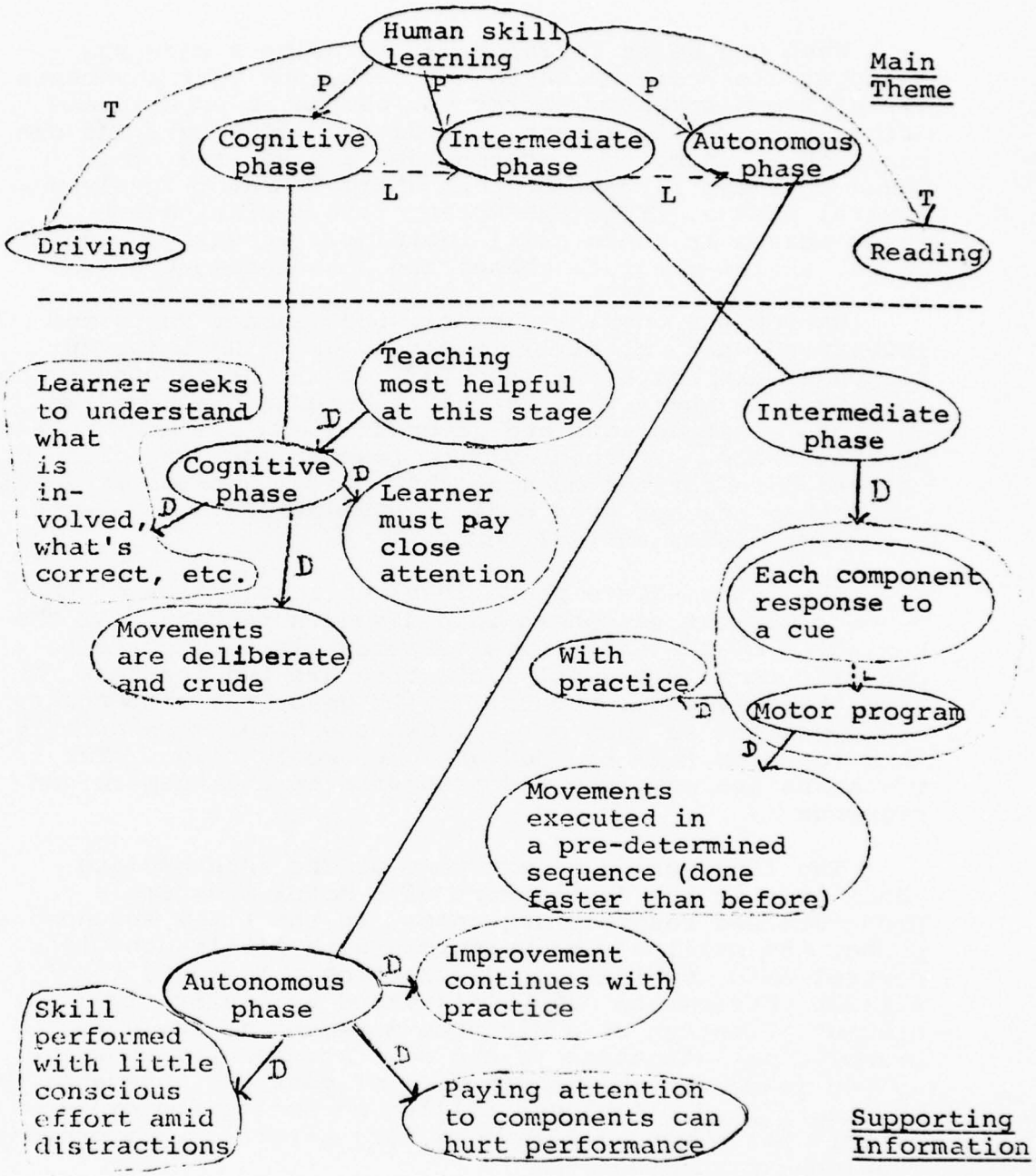
To broaden your understanding imagine what behaviors would lead to experiencing the three types of "difficulty."

When you begin learning how to drive a car, you must pay close attention to the task, and your movements are slow and awkward. After you become an experienced driver you execute smooth, coordinated movements and can carry on an animated conversation at the same time. These extremes illustrate that skill learning involves several phases. Fitts and Posner (1967) distinguish three phases in human skill learning: an early, cognitive phase, an intermediate phase, and an autonomous phase.

During the cognitive phase, the learner seeks to understand what the skill involves, what the component responses are, which cues should trigger the responses, how to determine whether or not the movements executed are correct. Instructions and demonstrations are most helpful at this stage. Frequently, the learner must pay close attention to certain cues at this stage, whereas at a later stage they are not even consciously noticed. Movements are slow, crude, and deliberate.

The intermediate phase involves integration of the crude component responses into a smooth pattern. At the beginning of the stage each component is a response to specific cues; frequently, the cues are the feedback from the previous component. With practice, components are organized so that one follows the other more quickly than reaction time to feedback cues would allow. The movements are now executed according to a predetermined sequence

The long period of practice of the intermediate phase ends in the development of a motor program, a predetermined response sequence. In the final autonomous phase, the skill can be performed with little conscious control amid considerable distraction. In fact, the skilled performance can be disturbed by explicitly drawing attention to a discrete movement or cue. For example, pay attention to the next movement of your eye as you read, and the smooth flow of your eye movements will be interrupted. Although skilled movements are executed at this phase with little conscious attention - improvement continues with practice.

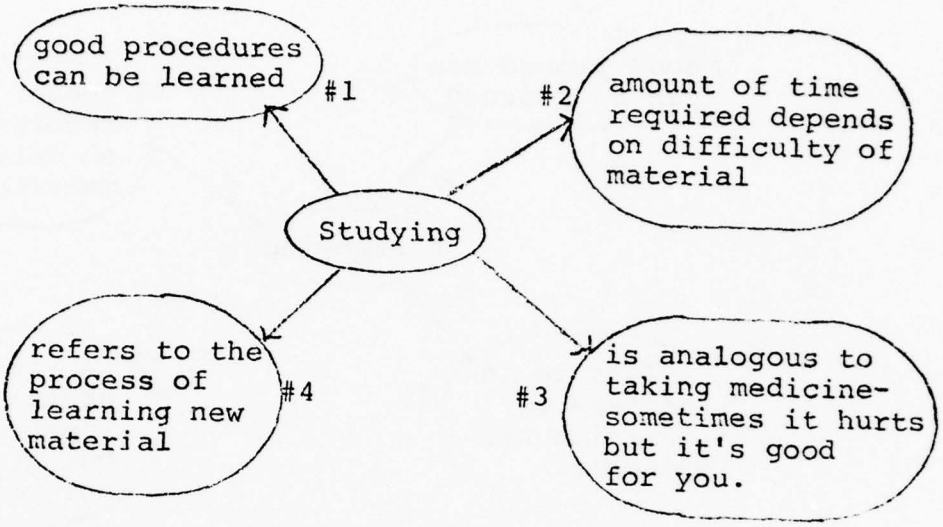


For deeper and broader understanding make the information more concrete by imagining yourself going through the three phases as you are learning the skill, "Networking."

Practice Exercises on the
Basic Link Structures

Practice exercises on the
basic link structures

1. Label the links in the following map:



2. What type of pure structure do we have? _____ structure.

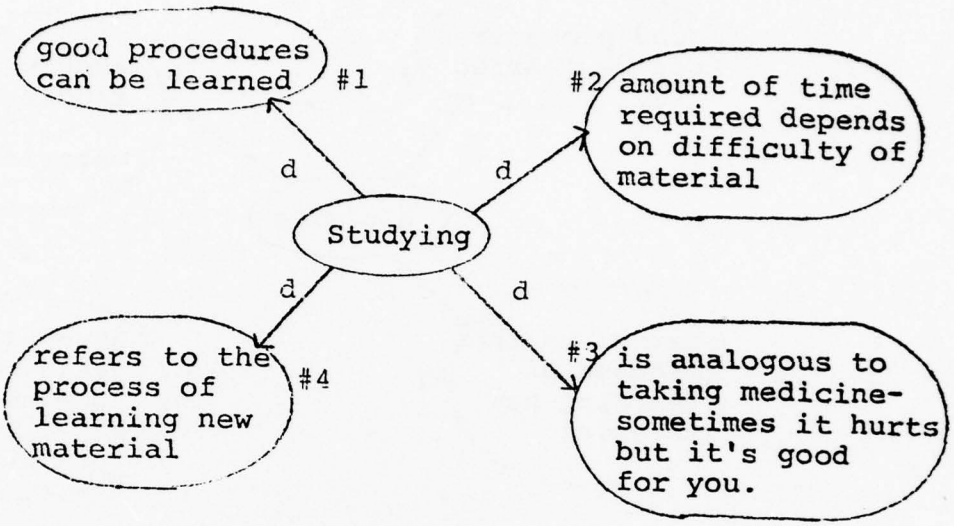
3. Can you mentally "picture" what studying is by putting together nodes 1, 2, 3, and 4 _____

4. What might be a relationship between nodes #2 and #3?
_____
_____

5. What might be a relationship between nodes #1 and #4?
_____
_____

NOTE: THESE "SOLUTIONS" ARE ONLY EXAMPLES. YOUR RESPONSES WILL BE DIFFERENT.

1. Label the links in the following map:



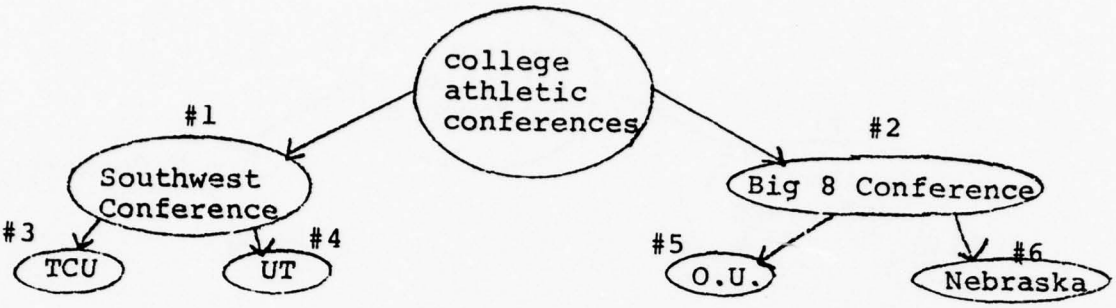
2. What type of pure structure do we have? descriptive structure.

3. Can you mentally "picture" what studying is by putting together nodes 1, 2, 3, and 4 yes

4. What might be a relationship between nodes #2 and #3? The time spent studying may seem painful but in the long run should prove worthwhile (e.g., grades, learning new skill).

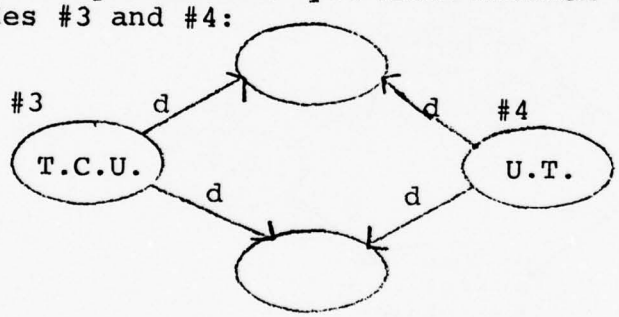
5. What might be a relationship between nodes #1 and #4? Learning good procedures for studying requires studying. (Catch 22?)

6. Label the links in the following map:



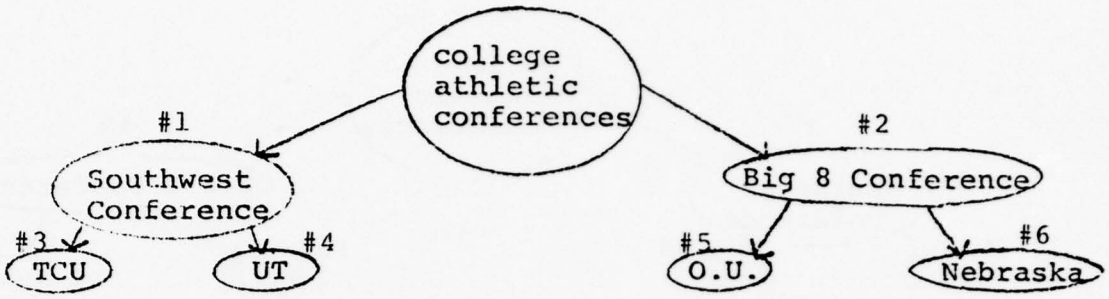
7. What type of pure structure do we have? _____
_____ structure.

8. What comparison can you make between the same level nodes #3 and #4:



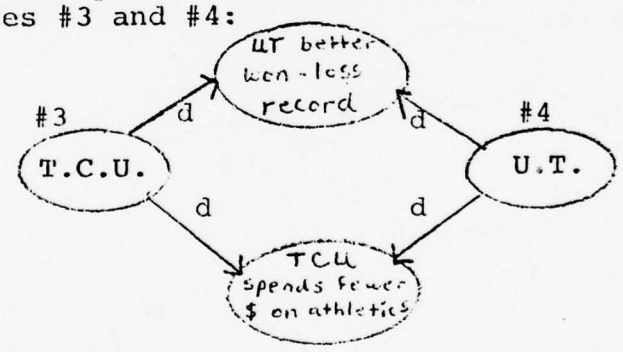
9. Can you form a mental "picture" of the information in the diagram in question #8?

6. Label the links in the following map:



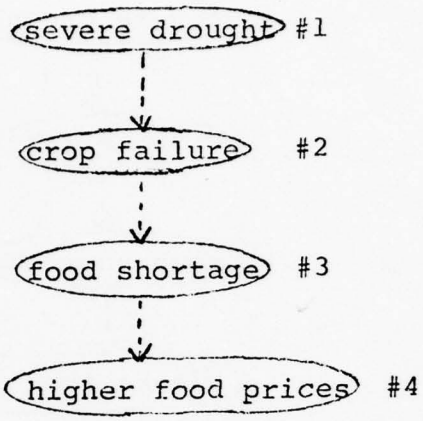
7. What type of pure structure do we have? type hierarchy structure.

8. What comparison can you make between the same level nodes #3 and #4:



9. Can you form a mental "picture" of the information in the diagram in question #8? Yes

10. Label the links in the following map:



11. What type of pure structure do we have?
_____ structure.

12. How does #1 lead to #4? Can you "picture" the action? Would you recognize the relationships if you saw them?

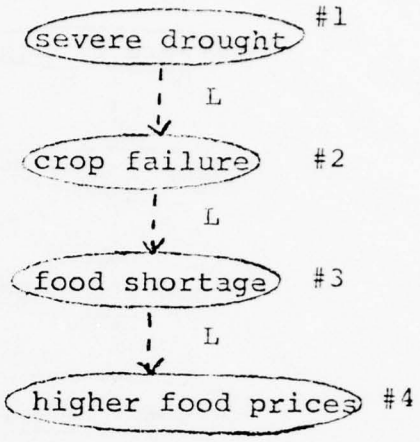
_____
_____
_____

13. Why does #1 lead to #4? Why does #3 lead to #4?

_____ _____
_____ _____

14. Could we put in another node that leads to #2?

10. Label the links in the following map:



11. What type of pure structure do we have?
chain structure.

12. How does #1 lead to #4? Can you "picture" the action? Would you recognize the relationships if you saw them?

Plants need water to survive therefore a severe drought for dry land farmers causes crop failure which results in food shortage. Since our commodity marketing system operates on the basis of supply and demand the food shortage causes prices to increase.

13. Why does #1 lead to #4? Why does #3 lead to #4?

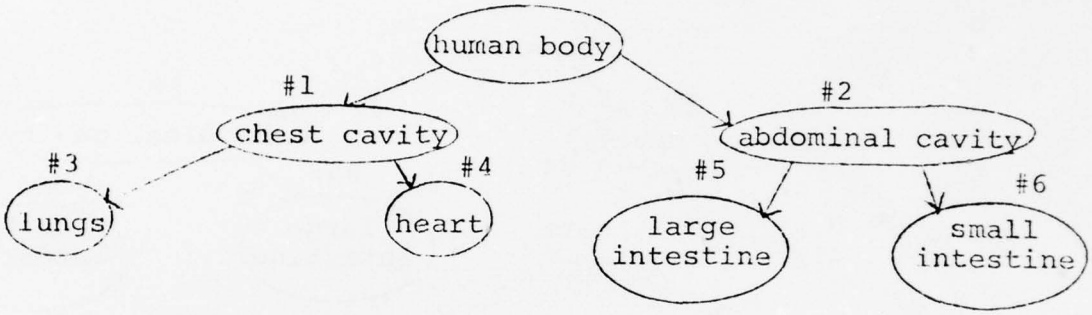
Plants require water for survival

Supply and demand
Nature of commodity market

14. Could we put in another node that leads to #2?

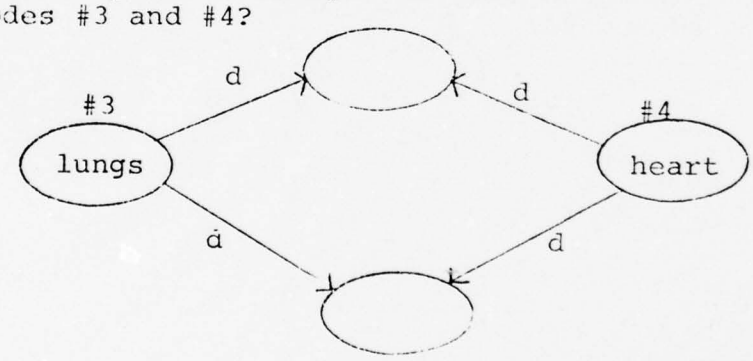
15. Could we put in another node after #4?

16. Label the links in the following map:



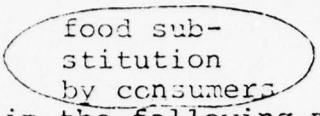
17. What type of pure structure do we have?
_____structure

18. What comparison can you make between the same level nodes #3 and #4?

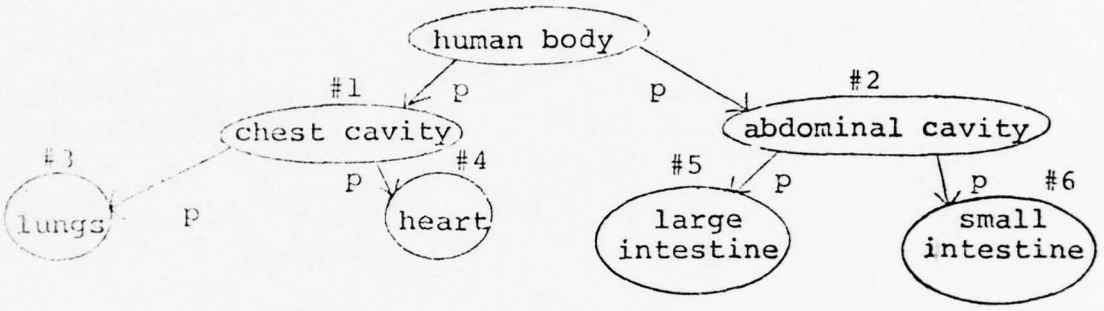


19. Can you form a mental picture of what is represented in the diagram in question 18. (Would you recognize it if you saw it in "real life"?) _____

15. Could we put in another node after #4?

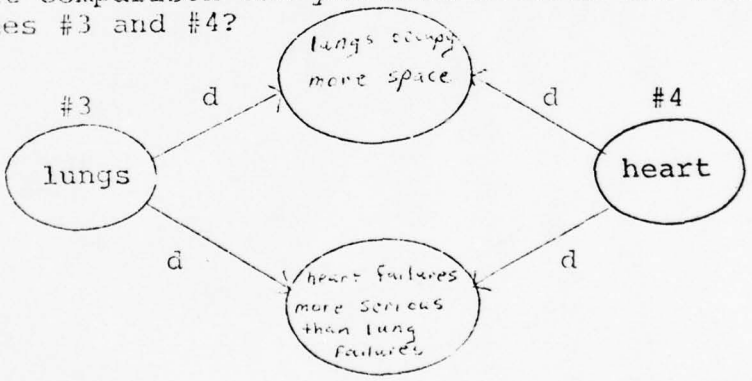


16. Label the links in the following map:



17. What type of pure structure do we have?
Part Hierarchy structure

18. What comparison can you make between the same level nodes #3 and #4?



19. Can you form a mental picture of what is represented in the diagram in question 18. (Would you recognize it if you saw it in "real life"?) Yes

Retrieval/Utilization*

*It has been found that the use of this stimulus works best by the use of different colors for each item for emphasis.

THE RECALL AND WRITING TECHNIQUE

The following are some guidelines for using the recall and writing technique for term papers or essay questions.

THINK BEFORE YOU WRITE

1. Think about the question! If you are answering an essay question, take a minute and ask yourself "what is being asked here, what kind of information do I need to answer the question completely, am I sure I understand the question?" If you are writing a paper, before you begin, make sure the topic you have chosen is clear in your own head. Have you asked too large a question to answer it well, have you posed too trivial a problem? What kinds of information do you need to include to make your paper understandable?

SET UP YOUR STRUCTURE - GUIDED SEARCH

2. Set up you "retrieval cross." (chain / part | type / description)

Use a large piece of paper if you can.

DECIDE ON MAIN STRUCTURE

3. Decide on your main structure. This decision will be based on the type of question you are answering. Remember, this is your organizing structure.

FILL OUT MAIN STRUCTURE

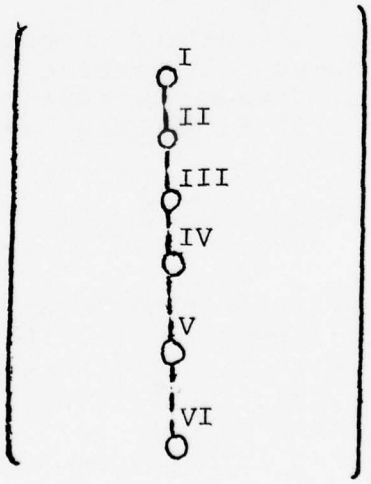
4. Start filling out your main structure. Be as complete as you can. Ask yourself questions! (Why does x lead to y: does it lead directly; how does it happen; can I see it; what is x a part of; type of; what are the parts or type of x; how can I describe x; would someone else recognize x from my description, etc.)

FILL OUT OTHER QUADRANTS

5. Take the concepts from your main structure and go into the other quadrants. For example, if you are in the "leads to" quadrant, take your concepts from that quadrant and see if you can think of parts of them, types and descriptors. This way, you will know you are being complete. You can either complete the main structure first and then go to the other quadrants or you can go back and forth as you think of information. Sometimes you will find that filling out your other quadrants changes or expands your main structure. Pay attention to this and make modifications accordingly. Remember, you want a complete and accurate answer as possible!

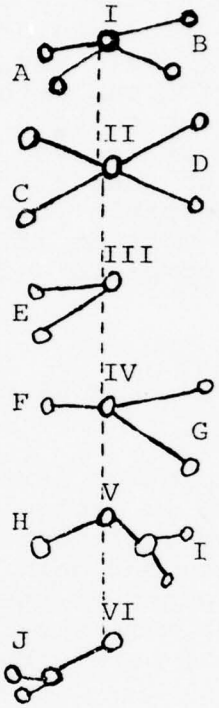
MAKE A CLEAN COPY OF YOUR MAIN STRUCTURE

6. Now you have completed your structure guided search. Your next job is decide <u>how</u> (in what order) you want to present or write out your information. You will usually find that your main structure provides the organization for the paper or answer. You should make a "clean copy" of your main structure and number the points you wish to make here. For example:



DECIDE WHAT ORDER YOU WANT FOR REST OF INFORMATION

7. Now go back through your quadrants and decide what order you want to add the information to your main structure. You might end up with something like the following.



This is similar to an outline except that you not only have the ideas you want to present but you also have the relationships between the ideas already laid out. So, your task in writing is <u>much</u> easier.

GUIDELINE FOR WRITING

8. One guideline in writing is to (1) tell them what you're going to tell them (2) tell them and (3) tell them what you told them. In other words, present an overview of your topic (this is usually represented in your main structure), then be more specific about the information - add details (this is information from your other quadrants) and finally, briefly summarize your ideas.

This will make your paper much more coherent or "together."

SUPPORT STRATEGIES: TRAINING MATERIALS

Goal Setting and Scheduling

Instructions for the Goal Setting and Scheduling Unit

Components:

1. Narrative Discussion
2. Worksheets
   - A. Career Goals Planning Sheet
     - (1) Part A: Goals
     - (2) Part B: Skills
   - B. Semester Planning Sheet
   - C. Semester Scheduling Sheet
     - (1) Part A: Time Allotment
     - (2) Part B: Weekly Schedule
   - D. Sample Semester Scheduling Sheets
     - (1) "A" Student
     - (2) "B" Student
     - (3) "C" Student

Complete the worksheets in accordance with the directions given in the narrative. Do not fill in any parts until directed to do so! In some cases it is necessary to understand our rationale in order to fill in the blanks properly.

Now, turn to page 74, Goals for College, and begin reading.

GOALS FOR COLLEGE

There are a number of things people might get out of college - social maturity, preparation for parenting, and citizenship, skills for leisure time activities. These are certainly valid objectives, but most people tend to think of college as helping them enter the kind of career they would like.

Some people have very definite career objectives for college, such as:

Prepare for entering medical school;

Prepare for teaching career in secondary education, with socialization in English and history;

Prepare for entering science oriented graduate program in psychology with major specialization in neurosciences.

Other people have less definite ideas. At first glance, some people might feel a bit unsure of their objectives. Somebody might think about like this:

"I really don't have objectives all that clearly laid out. I'm going to college - well maybe a little bit because I feel like I'm supposed to - but mainly because I think it'll help me get the kind of job I want. Only I don't know exactly what that is. So how am I supposed to know what my objectives are?"

Funny, isn't it, how a person can say an answer in plain English and not recognize it. Suppose the person started by filling in the answer this way:

Goals for college: to help me get the kind of job I want.

That doesn't sound very specific, not without knowing what kind of job the person wants. On the other hand, it's an honestly stated objective, and that's a lot better than a more specific, but superficial answer. If we could just get the person to think in terms of sub-goals - what steps have to be taken in order to achieve that goal -

"I'd like to come out of college ready to take some job. Guess I'll have to know then what kind of job. But I couldn't decide that now, because I'm not really sure what is involved in most jobs - and I'm not sure I know just what I'd like to do either - over the long haul, I mean. I just don't have enough information to decide what kind of work I'd like to do."

There's the answer, of course, right smack in the face. A well defined subgoal. Just a matter of recognizing it -

"Hey - maybe part of my objective should be to get the information I need to decide what kind of work I want to do - better write that down."

So there's one subgoal, and specific enough to do something with. But what about the other one? One of the reasons people don't see answers right in front of them is that the answers don't always fit preconceived notions.

"But what do I do till I decide? How do I learn things that will help me get the kind of job I want before I know what kind of job I want? That's not hard - what I need to do is learn things that are likely to be useful for any job I am likely to want."

That's pretty good for a start. It might take some further specification, but that could be done by continuing with the same pattern. But it's not a bad idea as it stands - flexibility, adaptability, keeping the options open. Nothing wrong with that kind of objective.

In specifying your college goals, try to follow these strategies:

1. Try to state your goals as accurately as you can, without bothering with whether they are the kind you think you should have.
2. An overall goal is seldom specific enough to work with - break it up into more specific subgoals. And if those aren't very specific, break them up into subgoals. Aim at getting a statement of goals specific enough to decide what courses you need to take and what you need to get out of them.

Now, turn to the Career Planning Sheet, Part A, and fill in your goal (s) and subgoals. Remember to be as accurate and specific as you can.

SKILLS AND CREDENTIALS

Subgoals for career objectives tend to fall into two categories, credentials and skills. Credentials are things like college degrees, teaching certificates, passing of required courses, and accumulating a certain number of credit hours in a specific area. Some kind of credentials are required or strongly recommended for most careers. Credentials are usually intended to testify that a person has certain skills, but they aren't equivalent to the skills themselves. You can easily imagine that a person could have all the necessary skills for a given career and not have the credentials. And, because credentials can't be specific enough to represent all the required skills, it is quite possible for a person to have the necessary credentials without having all the skills needed for the work.

Because it's easy to specify credentials and easy to tell whether a person has them and easy to say what a person needs to do to get them, credentials tend to get more attention than they deserve. A driver's license isn't worth much if you don't know how to drive. And success in any career is not just having credentials, but having the skills to back them up.

So, don't let yourself specify your college objectives just in terms of the courses you think you have to take. Specify the goals also in terms of the skills you are going to need. (As a bonus for doing that, you may find it helps you think about courses in terms of what you are getting out of them, rather than just in terms of grades.)

SKILLS

Skills are what you can do. Usually when somebody says skills, we think of action skills like driving a car, playing baseball or repairing a car. But how about public speaking? Isn't that a skill? Or writing clear and readable English? Or organizing your ideas and presenting them logically and persuasively? Or talking with someone about the government's economic policies without sounding like a dunce? Or being able to make sound judgements about the meaning of a public opinion poll? Or being able to read and understand a text in an advanced course? Or being able to work effectively as a member of problem solving team?

Think about the activities mentioned above. Don't just answer the questions - see if those suggestions trigger off any other ideas about the skills you might need.

If you feel that your list needs further development, go back and imagine yourself in the role of somebody who would be supervising or evaluating you. Again, run through some imaginary episodes and try to identify the skills the supervisor would be looking for. Then go through the three categories of skills.

For a third effort, imagine yourself in the role of someone who benefits from your work - the customer, consumer, client, or whatever. What kind of skills would you be looking for if you were that person?

At this point, you should have developed a reasonable list of needed skills. There are probably still a number of skills you haven't identified, because you may not be familiar enough with all the activities. You may want to think about how you could get more familiarity, but we'll leave that to you. There is one other source of information readily available to you, the required and recommended courses for your career path. Think through each of these courses and try to identify the skills you might be expected to get out of each course. Compare these skills with the list you have already developed. Add any new skills you find this way and note any skills on your list that are not provided by the courses. How will you get those skills?

ARRANGING TO MEET YOUR OBJECTIVES

Let's assume that you have a list of specific skills that specify a major part of your college objectives. How do you make sure you meet them? The usual answer is, take the right courses. That's a good start. But you can be more specific, now that you have a list of needed skills. Plan to take the courses that you expect to provide those skills and specify for each course the skills you plan to get out of it.

You will have noticed that many skills are fairly general. They are skills that might be learned or sharpened in a number of different courses. Such skills are usually rather important, so don't hesitate to list them as

objectives in every course where they might be appropriate.

But taking courses is only half the job. Suppose you took your car to a reqair shop because the brakes weren't working right. And the mechanic said the master cylinder needed fixing. So you left it for him to fix.

But when you got back and tried to drive it, you found out the brakes still didn't work. What would you say?

Leaving out the swear words, you would say something like, didn't you test it after you thought you'd fixed it? Don't you check your work?

The purpose, in other words, was not just to fix the cylinder, but to see that the brakes worked. And your purpose in taking a course is not just to "take" a course, but to develop needed skills. You expect a mechanic to check his repair. You should expect to check yourself on how well you're meeting your objectives.

Grades, you say? They do give a little information about how well you're doing, but at best the grade in a course is only a summary of how well you progressed and may not reflect your goals. After all, the instructor doesn't really know your objectives and has to grade on a more general set of objectives he thinks appropriate for the whole class. You have to make your own judgement as to whether the grading in each class really represents your objectives.

What else but grades? Start with the tests. They usually require several different skills of the kind you may want to develop. Look over the tests and your answers. See if you can identify the skills that are needed to do well on the tests. If those skills match some of the skills on your list, look over your answer (and use any comments from the instructor) to see how well you are doing in meeting your objectives.

Beyond that, look over your list and try to think of occasions, other than tests, when you might use those skills. Or maybe even think of occasions you could create to let you test your skills. Let's look at those categories again.

You will notice a pattern in this list. The skills all relate to things a person might learn in college. Most of them would be learned in courses which would be described as producing knowledge rather than developing skills. And all of them represent skills that are likely to be needed in a wide range of careers.

Now we don't want to put down the idea of gaining knowledge for the sheer joy of knowing something. Most of us find some things that we really enjoy learning about. And most of us find a lot of things that we don't enjoy learning about, but have to learn about to meet some objective. The point is, what we enjoy learning usually takes care of itself. It's the things we don't enjoy learning that call for planning. And that brings us back to skills.

Because the main reason for learning something (if we don't enjoy it) is to do something with the knowledge. Once in a while, maybe the only thing to be done with it is to pass the tests in the course. (That's still doing something, and it is a skill that many students develop.)

But careers do require skills, and people develop them in college courses. Trouble is, most courses aren't thought of as teaching skills and aren't labeled that way. There are some - accounting, public speaking, technical writing, computer programming - that are explicitly described as developing skills. And most careers don't have anything like a complete list of skills you need to do well in them.

So you have to figure things out for yourself. And that's a skill well worth developing for any career, so you might as well begin in the next section, Anticipating (or figuring things out).

ANTICIPATING (OR FIGURING THINGS OUT)

Your objective is to have a list - as complete as possible - of the skills you need to get out of college in pursuing your career goals. (If you don't have definite career goals as yet or if college isn't enough to achieve your goals, don't worry. That doesn't change the objective or the way of achieving it. It just changes the list.)

Your resources are: clues provided by required and recommended courses, whatever experience you have had that relates to what you'll be doing when you get out of college, and your imagination. Let's use your imagination first.

Try to imagine what you will be doing (or would like to be doing) when you get out of college. Not generally, but specifically. Run through some possible episodes in your mind. If you don't have a definite career objective, don't let that stop you - imagine what kinds of things you would like to be doing. Stop here and let your imagination run for a while.

Now try to list some of the skills you would have needed in these episodes. On the Career Goals Planning Sheet, Part B, are three headings: Interpersonal and communication skills, self management skills, and technical skills (Technical skills are those that relate directly to knowledge in your career area). Try to identify skills in each category.

Interpersonal and communication skills: Did you have to talk to people? Convince them of something? Get their cooperation? Explain anything to them? Talk knowledgeably about something? Find out things from them? Help them solve problems?

Did you have to organize your ideas for a formal presentation? Write letters or reports that made sense to other people?

Did you have to supervise people? Evaluate their performance? Give them constructive criticism in a way that would help them improve?

Self-Management: Did you have to organize your work? Plan your use of time? Get priorities on work to be done? Meet deadlines? Define the work that needed to be done? Set your own objectives? Develop your own plan for meeting your objectives?

Technical skills? Did you have to solve technical problems? Define technical objectives? Demonstrate sound technical knowledge? Explain technical matters to people unfamiliar with them? Make sound technical judgements?

Interpersonal skills and communication. Do you ever explain things to another student? Do you ever talk about the content of a course out of class? Do you ever work with other people in trying to solve a problem?

You can evaluate skills that call for communication by trying to communicate and checking the effectiveness of your communication by how well the other person understood you. The same principle applies to most interpersonal skills.

Self-management skills. These are expressed in following through on plans that you make for yourself, things that you commit yourself to do. No problem in checking your skills in this area.

Technical skills. Do you ever talk to other class members (or the instructor) about things you are studying? Do you ever work on projects that call for technical skills in your area? Does your textbook provide problems or thought questions you can try your skills on?

For every skill you want to develop, you need to specify some plan for developing it and some way to keep track of how you are *doing*.

YOUR GOALS FOR THIS SEMESTER

Now let's get specific about working toward goals. Normally, in planning a semester's work, you'd look over your set of goals, compare them with course offerings, and determine what goals you are going to try to achieve that semester. You probably did that in an informal way in planning your courses for this semester. Now that you have an explicit list of goals, however, it's time to look at your courses and see what goals you actually chose.

On the Semester Planning Sheets, list each course you are taking in column I. Then in column II, list the skills you expect to develop through that course. (Don't bother listing credentials - you'd need to do that for a complete job of planning, but for the present, we want to focus on skills.) Some of the skills may come

directly from your list, others may be subgoals for achieving skills on the list.

Remember that the same skills may be provided by more than one course. If you can identify more than four skills, fine. Keep them all in mind, but just list the four most important skills on the planning sheet.

After you have listed the main skills you expect to develop, go to column III and specify for each skill at least one way to check on how well the skill is developing.

Next, in column IV, specify how much improvement you want to achieve. Try to set reasonable goals here, taking into account future opportunities to sharpen the skills. Enter your judgement of how difficult it will be to achieve each of the goals.

Finally, in column V, place an effort rating on each skill. Don't be surprised if the things most important to your objectives take the least amount of effort. Your rating is not concerned with the importance of the skill but with how much effort you will have to expend in order to attain your objective.

PLANNING YOUR SCHEDULE

With your objectives set for the semester, you need to plan a schedule to help you meet your objectives. Go to the Semester Scheduling Sheet, Part A, and list the courses you are taking. Then list the level of effort needed for each course (from Semester Planning Sheet). Finally, decide how many hours a week you want to allot to each course. A good rule of thumb is that average achievement in a typical college class takes about two hours of efficient study per hour of class. (That doesn't apply to laboratories, phys. ed., or similar courses.)

You will have to adjust that figure for the level of effort you have assigned to each class and for the level of effort you have specified for each class. To do that, estimate how many hours of study per hour of

class you spent last semester. (Think back to some specific assignments you did and try to remember how long it took you to do them.) Use that as your base figure for the average number of hours to allocate to a class.

Now consider the level of effort you have estimated for a class. If all classes are about equal, allocate the average time to each. If there are substantial differences, allocate the time approximately in proportion to the level of effort you have estimated. Don't make a big job out of this at present. Just separate the courses into light, average and heavy. Then give less than average time to the light courses and more time to the heavy courses, as you think appropriate.

You are ready to fill out your weekly schedule. Go to the Semester Scheduling Sheet, Part B, and enter the times that you have classes meeting. Then enter the hours that you plan to study for each class meeting, to match the time requirements you just arrived at. In addition to times scheduled for a specific course, add about 10 hours, distributed through the week as reserve study time. Schedule them, if possible, in the evening and on weekends.

The reserve study times are catch-up periods that you will need to use only if you don't meet your study schedule or can't complete the work in the regularly scheduled time. If you hold to your schedule and study efficiently you should not need to use these back-up periods very often.

After you have completed your schedule, look it over and ask yourself whether it really looks right for the objectives you have set for this semester. Take into account that you are putting special effort into developing study skills. Consider that you may want to put additional effort into course work this semester as a way of getting the most out of this effort.

CAREER GOALS PLANNING SHEET

Part A

1. State your main goal(s): _____

2. State the subgoals you have, or need to have, to help you achieve your main goal(s):
   a. _____
   b. _____
   c. _____
   d. _____
   e. _____

(If more space is needed, use back of sheet.)

Part B

1. List the skills needed to attain your subgoals:
   a. Interpersonal and communication skills:
      _____
   b. Self-management skills:
      _____
   c. Technical skills directly related to career area:
      _____

(If more space is needed, use back of sheet.)

Semester Planning Sheet - I

Courses	Skills to be Developed	How will you measure or check for improvement on each skill	Desired improvement on Skill*	Degree of Effort to attain desired level**
	1. 2. 3. 4.	1. 2. 3. 4.	1. 2. 3. 4.	1. 2. 3. 4.
	1. 2. 3. 4.	1. 2. 3. 4.	1. 2. 3. 4.	1. 2. 3. 4.

* - enter number based on following scale:

1. Enough improvement for me to notice.
2. Enough improvement for other people to notice.
3. Enough improvement for mastery of the material.
4. Enough improvement to meet beginning level career job requirements.

** - enter number from 1 to 10 based on the following scale:

minimum effort				average effort					maximum effort
1	2	3	4	5	6	7	8	9	10

Semester Planning Sheet - II

Courses	Skills to be Developed	How will you measure or check for improvement on each skill	Desired improvement on skill	Degree of Effort to attain desired level
	1. 2. 3. 4.	1. 2. 3. 4.	1. 2. 3. 4.	1. 2. 3. 4.
	1. 2. 3. 4.	1. 2. 3. 4.	1. 2. 3. 4.	1. 2. 3. 4.
	1. 2. 3. 4.	1. 2. 3. 4.	1. 2. 3. 4.	1. 2. 3. 4.

Semester Scheduling Sheet

Part A

Directions: List the courses you are taking, the degree of effort for each course (from Semester Planning Sheet), and the number of study hours you plan to allot to each course. Remember, this should average approximately two study hours for each hour of classroom instruction.

Course	Degree of Effort*	Study Time allotment per week**
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____
	Total hours:	

* - Course degree of effort is equal to the Total of the degrees of effort listed for skills on the Semester Planning Sheet.

** - You won't allot study time, of course, for labs, P.E., and the like.

Semester Scheduling Sheet

Part B

Directions: Design a weekly schedule that includes your classroom instruction time, the study time allotment you listed in Part A, and ten hours of back-up study time. This back-up study time should be scheduled for evenings and weekends and should not be allocated for any specific course. That is, it should be available for use on any course, if it is needed.

Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
8:00							
9:00							
10:00							
11:00							
12:00							
1:00							
2:00							
3:00							
4:00							
5:00							
6:00							
7:00							
8:00							
9:00							
10:00							
11:00							

Concentration Management

CONCENTRATION MANAGEMENT

I. Goals

Are you an Optimist? Pessimist?

Use a Checklist

To enable you to see how accurately you estimate the time it will take you to do things (whether you're an optimist or pessimist) we want you to do 2 things:

ON THE TASK CHECKLISTS on the following pages:

1) write down everything you have to do tonight after class (school and non-school related activities)

2) estimate how much time it will take you to do each activity.

Do the same for your activities tomorrow (on a second CHECKLIST).

Now, one important part of this experience is for you to complete the checklist by noting the actual time you spent on each activity (whether you're an optimist (O), a pessimist (P), or Right On (R), and what you can say to yourself about it. Plaase fill out these checklists all this week.

TASK CHECKLIST

DATE: _____

*OPTIMIST - it took longer than I thought
PESSIMIST - it took less time than I thought
RIGHT ON - I predicted correctly

TASK	Estimated Time to Complete	Actual Time to Complete	*Put "O" or "P" or "R"	REINFOPCING COMMENTS

II. Attitudes and Mood

How does a bad attitude come about?

Importance of Decision Points

Crisis Management

Mood - part of MURDER
is setting a Learning State
Learning Environments
Shifting Sets - Shifting Chairs

WHAT IS YOUR ATTITUDE?

Look at the worksheet on the following page.

1. Write down exactly what you've thought or said to yourself about class tonight.
2. Now, how would the person next to you react if he were to read what you have written?
3. How could you create a more constructive attitude?
   a. What are the positive things about the course?
   b. Engender the positive feelings associated with these things.
   c. What can you say to yourself which would contribute to a more positive attitude?

Developing Skills in Creating a More Constructive Attitude -

see exercises

WHAT IS YOUR ATTITUDE?

1. What have you been thinking or saying to yourself about this evening?

   _____
   _____
   _____

2. What would you predict someone else would feel after having these thoughts?

   _____
   _____
   _____

3. What could you say or think to yourself that would make your attitude more CONSTRUCTIVE?

   _____
   _____
   _____

EXERCISES: ATTITUDE

Below are some statements students (including yourselves!) have made prior to and during studying. Read the statement and then write a constructive statement to challenge it. Use your own words as if you are talking to yourself. If the statement reflects a situation which could be handled better with one of the other coping skills (relaxation, listing, taking a break) or activities, write this. Then, look at the alternative statements listed on the page. If you think your solution could be improved, please re-write it. This exercise is designed to develop your skills in recognizing a poor attitude and delineating what could be done to change it. (In parenthesis is the type of response from our repertoire given.)

I HATE THIS COURSE!

_____
_____
_____

O.K. This history course may be boring but the history of the U.S. isn't. It's up to me to compensate for ole beer belly's lectures! (Taking Control)

Now you know it's not the course you hate, it's the lectures. Just make them as interesting as possible and rely on the text and other books as more interesting sources of information. (Reality Thinking)

EVERYTIME I EVEN THINK ABOUT STUDYING I GET SO TENSE!

That's the time I need to work on my attitude. I can list what I need to do which will reduce some of the tension. I can relax as I think about studying, expecting tension and coping with it.

(Reality Thinking & Taking Control)

WHAT AM I DOING HERE AT TCU!

O.K. You're here for the simple reason that you want a good education. If you keep questionning everything you do you'll never do anything. If you have to question - wait 'til the appropriate time (the end of the semester) when you have more of a perspective. Besides, you wouldn't want to leave mid-semester.

(Reality Thinking)

WHENEVER I'M FACED WITH STUDYING I SHARPEN PENCILS, DUST MY DESK, GATHER MY MATERIALS, STRAIGHTEN THE ROOM, ETC. AND CAN'T SEEM TO GET ON WITH THE TASK.

I could limit these "orienting" behaviors to 5 or 10 min. and work on my attitude (via relaxation and self-talk) while I'm doing them.

(Taking Control)

I could get myself excited about studying while I'm getting my stuff organized.

(Psyching Yourself Up)

I AM SO FIDGETTY! I CAN'T SIT STILL! MY NAILS ARE CHEWED DOWN TO THE QUICK AND I'VE LICKED MY LIPS SO MUCH THAT THEY'RE CHAPPED!

Well, I usually get fidgetting when it's time to sit still and study. I could do some physical exercise for a few minutes, I guess. I will probably settle down if I just relax (tell myself to take it easy) and get into the task. I really need to get into the habit of setting the mood. I could kid myself about my fidgetting!

(Take a Break, Take Control, Calm Yourself & Coaxing)

THIS ROOM IS SO DEPRESSING! I COULD STUDY IF I WERE IN MY ROOM AT HOME.

If I have to study here, I have to train myself to concentrate regardless of the environment. I can find something nice about it or simply ignore it. I can get into my studying by setting my mood.

(Reality Thinking, Coaxing, Taking Control)

I can leave the environment or improve it. It may be that I'm blaming the environment for my own inability to get into my work.

(Change Environments, Take Control, Reality Thinking)

I'M SO UPSET. MY ROOMMATE LEFT SCHOOL. MY DAD LOST HIS JOB. I JUST CAN'T WORK WITH ALL THESE PROBLEMS ON MY MIND. I THINK I'LL LEAVE SCHOOL, TOO.

I really need to go off for awhile and relax. I should talk to my roommate and Dad and tell them how concerned I am and that I wish I could help. (They wouldn't want me to leave school, I know.) I'll allow myself a definite amount of time for this and then I'll come back and begin studying. I'll reward myself, for accomplishing small things and calm myself when necessary.

(Take a Break, Take Control, Reality Thinking, Self Reward, Calm Self)

I'VE HAD A REALLY HARD DAY TODAY AND DESERVE A BREAK. THIS COURSE IS A WASTE OF TIME ANYWAY.

You're just making excuses for not studying. Set your mood, relax and get to it.

(Reality Thinking, Taking Control, Psyching Yourself)

Yes, I have had a hard day and I do need a break. But I definitely will study at 7:00. These rationalizations for not studying aren't getting me anywhere!

(Take a Break, Reality Thinking)

I NEVER HAD TO STUDY IN HIGH SCHOOL. WHAT'S WRONG WITH ME NOW?

I guess T.C.U. is a little rougher school than most colleges near my home. I wanted to challenge and improve myself. That's why I wanted to go to a good school.

(Reality Thinking)

I COULD STUDY IF I WEREN'T SO FRUSTRATED!

Maybe I should analyze why I'm frustrated. I think it's because I don't seem to be getting my work done. Feeling frustrated only makes the situation worse so perhaps I need to work on my attitude. Also, I need to break this assignment down into manageable parts and reward myself for each step forward!

(Reality Thinking, Break Task Apart, Self Reward)

I may need to take a break to work off some of this tension. I can analyze my situation while I'm on the break and set a plan for getting back to work.

(Take a Break, Take Control)

I HATE ENGLISH! IT SHOULDN'T BE A REQUIRED COURSE.

Well it is required so accept the facts. It's necessary to pass it. (Reality Thinking)

Well it is so what can I do to make it more tolerable? (Reality Thinking & Taking Control)

IF I WEREN'T UNDER SUCH TIME PRESSURE MY ATTITUDE TOWARD STUDYING WOULD BE BETTER!

Maybe my attitude gets me into the situation in the first place! If I had a more positive attitude I might get my work done more effectively and not wait 'til the last minute. I'll take control of my attitude by listing tasks to be done and talking myself into doing them instead of talking myself out of doing them!
(Reality Thinking, Taking Control)

I JUST DON'T KNOW IF I SHOULD BE IN SCHOOL. I'M INTERESTED IN SO MANY THINGS RIGHT NOW.

Listen, you're tired and bored. You waited 2 years to come to T.C.U. Remember how excited you were about coming here? You just need to clear your head and get your perspective back. Why don't you walk around campus for awhile.
(Reality Thinking, Take a Break)

III. Coping Skills

Brute Force? Why Not? High Emotional Toll -

Steam Kettle

Repression

It may, however, work as a Reminder

Definition of Coping: maintenance of learning state or mood developed prior to studying. Doesn't eliminate distractions--it keeps them manageable.

Coping Skills: Relaxation

Listing

Self-Talk - (1) Awareness may be sufficient

(2) A challenge may be necessary in some cases

Citing Precedents: Where's it gotten gotten you in the past?

What is your Repertoire of Responses?

Development of Coping Skills - See exercises

DO YOU DO THIS?

Below are responses to concentration or attitude problems reported by students including yourselves. Please mark the degree to which you use each of these responses in coping with distractions or not wanting to study in general.

Repertoire of Responses

1. Brute Force - forcing yourself to study.

1	2	3	4	5	6	7	8	9	10
I never do this when I'm having trouble concentrating									I always do this when I'm having trouble concentrating

2. Break Task Apart - Deal with small segments of the task to make it more manageable.

1	2	3	4	5	6	7	8	9	10
I never do this when I'm having trouble concentrating									I always do this when I'm having trouble concentrating

3. Take A Break - release tension through exercise, relaxation or recreation.

1	2	3	4	5	6	7	8	9	10
I never do this when I'm having trouble concentrating									I always do this when I'm having trouble concentrating

4. Self-Reward - reward yourself for sticking to it.

1	2	3	4	5	6	7	8	9	10
I never do this when I'm having trouble concentrating									I always do this when I'm having trouble concentrating

5. Self-Punishment - force yourself to study through threat or by arousing fear and guilt.

1	2	3	4	5	6	7	8	9	10
I never do this when I'm having trouble concentrating									I always do this when I'm having trouble concentrating

6. Change Environment - go somewhere else.

1	2	3	4	5	6	7	8	9	10
I never do this when I'm having trouble concentrating									I always do this when I'm having trouble concentrating

7. Reality Thinking - using convincing or challenging self-talk involving a change of perspective or delay of gratification.

1	2	3	4	5	6	7	8	9	10
I never do this when I'm having trouble concentrating									I always do this when I'm having trouble concentrating

8. Break Your Set - re-set your mood by counting breaths, doing mental multiplication or relaxing muscles.

1	2	3	4	5	6	7	8	9	10
I never do this when I'm having trouble concentrating									I always do this when I'm having trouble concentrating

9. Coaxing yourself through humor or kidding - using your sense of humor to coax yourself back to the task.

1	2	3	4	5	6	7	8	9	10
I never do this when I'm having trouble concentrating								I always do this when I'm having trouble concentrating	

10. Taking Control - bringing yourself back to what you need to do without negative emotions (anxiety, fear). Doing what you can do to change the situation.

1	2	3	4	5	6	7	8	9	10
I never do this when I'm having trouble concentrating								I always do this when I'm having trouble concentrating	

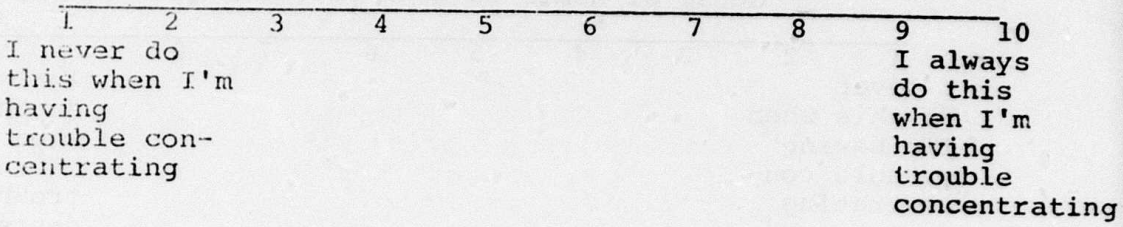
11. Change your "goal" or expectation - when you can't accomplish what you intended, you lower your expectations or change your "goal" to something you can obtain

1	2	3	4	5	6	7	8	9	10
I never do this when I'm having trouble concentrating								I always do this when I'm having trouble concentrating	

12. Calming yourself - relaxing or talking calmly to yourself For example, "It's O.K. Just take it easy."

1	2	3	4	5	6	7	8	9	10
I never do this when I'm having trouble concentrating								I always do this when I'm having trouble concentrating	

13. Psyching yourself up (like in a football huddle) - getting yourself excited about moving on. Self-talk might be, "O.K. Let's get moving!"



EXERCISES: COPING WITH DISTRACTIONS

This exercise is the same as the one you did on Attitudes. Again, just read the statement and then write a constructive challenge to it. Your "challenge" may be some self-talk or a suggestion for an alternative activity. When you've finished your answer, read the alternative statements. If you'd like to revise your statement, please do so on this page. This exercise is designed to develop your skills in coping with various kinds of distractions, especially coping via self-talk.

I'M SO SLEEPY...MAYBE I COULD LIE DOWN HERE FOR A FEW MINUTES...

I think I'll move to the desk where there are cues for studying and not sleeping. I should know not to get too relaxed while studying at night!
(Reality Thinking, Taking Control, Changing Environment)

I am too exhausted to learn anything. I should get some rest and begin again tomorrow.
(Take a Break)

BOY, I BETTER NOT FLUNK THIS NEXT TEST LIKE I DID THE LAST ONE.

You're not going to flunk the test 'cause you're not leaving the work 'til the last minute. That's what got you in trouble last time. Keep on trying!
(Reality Thinking)

I AM SO THIRSTY!

I'll get a large glass of water and put it by my desk.
(Taking Control)

O.K. Class will be over before too long and you can get something to drink then. Focus in on the task.
(Reality Thinking, Taking Control)

EVERYTIME SOMEONE WALKS IN HERE I LOOK UP FROM MY BOOK.
I CAN HEAR EVERYTHING THAT'S GOING ON ON THIS FLOOR.
EVEN MY ROOMMATE'S NAIL FILING IS DRIVING ME UP THE WALLS!

Ask everyone to be quiet.
(Take Control)

Move to a quieter place.
(Change Environment)

Why am I paying attention to all these things? It's a symptom that I'm not into what I'm doing. I need to re-set my mood.
(Reality Thinking, Taking Control)

I'LL BET GEORGE HAS ALREADY FINISHED THIS AND IS AT THE PARTY!

What George has or hasn't done is irrelevant to you. Stop feeling sorry for yourself - a lot of people are studying like you are.
(Reality Thinking, Taking Control (some punishment)

THIS TEXT COULDN'T BE MORE POORLY WRITTEN. THE MATERIAL WOULD BE INTERESTING IF I DIDN'T HAVE TO STRAIN SO HARD TO GET IT.

At least the material's interesting! I better re-organize it so I can learn something about this topic. Since I'll be using a lot of energy to organize the material I better intersperse some brief relaxation periods. This might be fun - I'll pretend I'm an editor.
(Take Control, Coaxing)

IT'S GETTING LATE AND I HAVE TO GO TO SUE'S HOUSE BEFORE HER PARENTS LEAVE TOWN TOMORROW MORNING.

It's getting late, yes, but I want to learn something don't I? And the more I do now while the lecture's fresh on my mind, the less effort it will take!
(Reality Thinking)

IT'S NOT THAT THIS MATERIAL'S SO BAD IT'S JUST THAT HE'S SUPPOSED TO CALL ME TONIGHT AND TELL ME WHETHER WE CAN GO TO THE CABIN WITH HIS FOLKS THIS WEEKEND. I'M SO EXCITED!

If I flunk out of school I won't be back next year to be with all my friends. No holiday's so exciting that it should occupy all my attention.
(Reality Thinking)

I'M STARTING TO DAYDREAM. IT'S SO HARD TO CONCENTRATE ON THESE MATH PROBLEMS.

O.K. Better straighten up now before you give up! What's distracting me? I think I'm fatigued because these problems are so difficult. I better take frequent breaks and reward myself for staying calm and controlled.
(Taking Control, Some Reality Thinking, Taking Breaks, Self-Reward and Calming Self)

OH GOSH. I FORGOT TO CALL HER BACK.

Just put it on your list and call her when you're finished.
(Take Control)

I better call her now because she said it was important. Let me read this last page so I won't lose my train of thought. Then, I can start the next chapter when I get off the phone.
(Take Control)

I CAN'T WAIT TIL FRIDAY! THE PARTY IS GOING TO BE SO SUPER!

Friday's a long way off! You have to function in the mean time so get to it.
(Reality Thinking, Taking Control)

I DON'T WANT TO DO THIS. MAYBE BILL'S BORED, TOO AND WOULD LIKE TO TAKE A BREAK.

Sit yourself down and read. Stop being a bad influence on Bill, too. You know he has to make his grades!
(Reality Thinking, Taking Control)

I WISH I HADN'T SAID THAT TO SCOTTY THIS MORNING. I'LL BET HE'S SO ANGRY WITH ME. MAYBE I SHOULD CALL HIM?

Why don't you finish what you're reading and then call and ask him over? You won't get much satisfaction over the phone which will only disrupt your studying more!
(Reality Thinking)

I WANT TO STUDY BUT I REALLY NEED TO GO TO THE SORORITY MEETING AND BENEFIT DANCE.

I need to determine my priorities and schedule my studying. I'm always facing these conflicts because I don't plan ahead. For now, I'll have to work around the meeting and get as much work done as possible.
(Reality Thinking, Take Control)

I NEED A BEER!

I should try counting my breaths to relax. Beer will make me drowsy, plus I always run into friends and don't come back to the dorm.
(Break Set, Reality Thinking)

I WANT TO GO UPSTAIRS AND HAVE FUN WITH MY FRIENDS.

You can go upstairs when you finish! You know they'll be at it for hours!
(Reality Thinking, Taking Control)

I WONDER IF MY HAIR LOOKS O.K.

What difference does it make? You're supposed to be studying! (Reality Thinking)

THIS IS JUST ONE COURSE OUT OF 5! I'LL NEVER GET THROUGH THE SEMESTER!

Just take things as they come. You can do the work if you schedule your time. Just focus on one thing at a time.
(Reality Thinking, Calming Self, Control)

I'VE GOT TO START ON MY NURSING COURSES!

Finish this first, you BOZO!
(Control)

THERE IS A LIMIT TO HOW MUCH TIME I CAN SPEND ON THIS!
I HAVE THREE PAPERS TO CRANK OUT THIS WEEK!

I need to look at what I have to do and how much time I can spend on this. It sure won't do me any good to get behind in this course while catching up in the others.
(Taking Control, Reality Thinking)

OH, GOSH! I'M SO WORRIED ABOUT THIS!

Just a little more. You're almost done. You know more than you think. Relax. Keep going.
(Calming, Coaxing)

THIS IS SO HARD! I DON'T SEE HOW IT RELATES TO ANYTHING!

Maybe I can make a challenge out of this! I do need to find the relevance. Maybe I could talk to some other students or the instructor.
(Psyching out, Reality Thinking, Taking Control)

Yes, it's hard but it will be easier the next time you go over it. You may need to understand it more deeply before you can see the relevance. The material later in the chapter should be helpful, too. I think I'll try out the Problem Solving Technique (which has mildewed in the trunk of my car!) to make use of Breaking Down these big words and using the Surround (the summary at the end).

WHY DIDN'T I CLEAN MY CONTACTS BEFORE I CAME TO CLASS?

It's too late now. I can't afford to miss one word of this because he only tests over the lecture!
(Reality Thinking)

I DON'T UNDERSTAND THIS. MY EYES ARE JUST DRIFTING OVER THE PAGES.

O.K. What's the problem? Don't just say you don't understand this as if there's nothing you can do about it! Figure out what's wrong.
(Reality Thinking, Taking Control)

I'VE GIVEN THIS MY BEST SHOT AND I STILL DON'T KNOW IT.

Since you've worked on it it may be time to go to another source. The instructor will probably be happy to help - especially since you've worked so hard.
(Reality Thinking, Taking Control)

I COULD CARE LESS ABOUT THE BETTER BUSINESS BUREAU. I'M SICK OF READING THIS.

I realize that the BBB serves an important purpose and I do care about what goes on in the community. I'm just not wanting to exercise my brain beyond TIME Magazine. I need to grow up and discipline myself a little.
(Reality Thinking, Taking Control, Some Punishment)

THIS IS MY MAJOR AND IT'S SO BORING!

It's boring because it's a "foundation" for the good stuff that comes later. Just learn this (make it interesting if you can) and look forward to knowing it. Remember how hard 3 X 7 was at one time?
(Reality Thinking, Taking Control)

OH IT'S SO LATE. I'LL NEVER FINISH! MIGHT AS WELL GIVE UP AND GO TO SLEEP.

O.K. it's late. But you're already organized and you've done alot of work. The worst is over - it's downhill from here. You'll feel so good when it's done!
(Reality Thinking, Taking A Break, Changing "Goal", Self-Reward)

It is late and I don't think it will hurt to lower my expectations about what I need to accomplish tonight. I've done a good job.
(Reality Thinking, Taking A Break, Changing "Goal", Self-Reward)

THIS IS REALLY FUN! THE FIRST GOOD CHAPTER IN THE TEXT!

Well, that's great but get back to it. Read!
(Self-Reward, Taking Control)

I'VE ALREADY SPENT 2 HRS. WITH THIS BOOK. I THINK I'LL GIVE UP!

Well you might as well have put it under your pillow for all the work you've done! So you've "read" for 2 hrs. you still don't know it so get to work.
(Reality Thinking, Taking Control)

HOW WILL I EVER MEMORIZE ALL THESE MEN'S NAMES, THE DATES, AND THE PLACES THE BATTLES WERE FOUGHT!

Well, if you weren't so eager to push the panic button you might relax and learn something! You can always make a chart of important information later.

I AM SO TIRED. I THINK I'LL LAY DOWN FOR A LITTLE WHILE. MY MIND WILL BE FRESHER WHEN I WAKE UP.

Oh no you don't! You know you'll just be sleepier than you are now! Finish one more section.
(Reality Thinking, Taking Control)

I've been at this for a long time. I'll finish this page and go to bed. I've worked hard.
(Reality Thinking, Taking a Break, Self-Reward)

IV. Self-Checking

What kind of "monitor" are you?

What should you monitor?

Individual Differences: facial muscles, tension in legs

Development of Skills in Self-Checking - exercises on next pages

When should you monitor?

When you're Listing

When you're at a "Action Point"

EXERCISES: SELF-CHECKING

This is the final set of exercises. Proceed exactly as you did on the first two exercises (Attitudes & Coping). This exercise is designed to develop your skills at recognizing "self-checking" problems and delineating what could be done to correct them.

ACCORDING TO MY SCHEDULE I ONLY HAVE 20 MIN. LEFT SO I BETTER HURRY! NOW, ALL I CAN THINK ABOUT IS HURRYING!

There's no point in worrying about the time. I need to complete the "goal" as best I can. I can always add on to tomorrow's schedule. Doing a reasonable job of this is more important than being "through" and having nothing to show for it!

(Reality Thinking, Taking Control)

IF I DON'T MAKE A GOOD GRADE ON THE TEST I'LL KNOW WHAT PRESSURE REALLY IS! EVERY SENTENCE I READ LOOKS LIKE A POTENTIAL TEST QUESTION!

If you keep worrying you will flunk! You need to realize that even if you were to mess up on this test there's always another chance. Chances are you'll do well because you're studying. Looking at concepts in terms of potential test questions might be constructive if you'll relax.

(Reality Thinking, Coaxing)

I DON'T KNOW WHETHER THIS IS AN IMPORTANT CONCEPT OR NOT!

I guess I should work with it if I'm not sure. The important thing is to make a decision and move on. If I decide not to work with it I can always pick it up during DIGEST if I need to.

(Reality Thinking, Taking Control)

I'M NOT SURE WHAT I'M SUPPOSED TO BE DOING WITH THIS TECHNIQUE. I HAVE TO STOP EVERY FEW MINUTES IN CONFUSION.

Well, I need to re-read how to use it. It will save me time in the long run. If I am still confused I should call one of the instructors.
(Reality Thinking, Taking Control)

I WONDER IF I SHOULD SPEED UP?

Just take your time until you have to change your strategy. See how you're doing at the next stopping point.
(Reality Thinking, Taking Control)

THIS IS NOT GOING TO BE EASY HAVING TO MEMORIZE ALL THIS.

If you take a little at a time you'll be finished in no time.
(Calming Self, Taking Control)

I'M NOT SURE I KNOW WHAT THE ASSIGNMENT WAS.

All I have to do is call someone else in the class or ask the instructor.
(Reality Thinking, Taking Control)

WHAT IF THERE ARE SO MANY SMART PEOPLE IN HERE THAT I END UP MAKING A "C"? THIS STUFF IS HARD!

I guess most of my friends were afraid to take this course. It will be good for me to have it behind me even if I do make a "C". A "C" in a course like this is pretty good!
(Reality Thinking, Self Reward)

CONCENTRATION MANAGEMENT

Fill out the Task Checklist

Keep a daily record of both your school and non-school related tasks on the Task Checklist. Include the amount of time you think each activity will consume. Check each item off as you complete it, note the accuracy of your time estimate on the Task Checklist, and reward yourself for keeping the record!

Work at maintaining a constructive attitude

Work at having a constructive attitude during critical times, especially when you have a lot of surface tension. Remember to supplement your positive self-talk with physical activity during "Crises." Be sure to note your attitude when you make your checklist and deal with any non-constructive thoughts you might have.

Set your learning state

Set your goal. If you feel ready to begin, jump into the task! If not, set your state by relaxing and saying comments like the following in your own words: "I will study intensely and enjoyably for the next hour." Image this experience. Try to engender the feelings associated with such an experience. Next, tell yourself: "I will not get upset by distractions. I will cope with them appropriately and return to the task." Image yourself getting distracted and successfully coping. Try to engender the feeling associated with this. Finally, do or say whatever else will help you set a good learning state. Feel free to vary the above approach as you begin to discover what works for you.

Set action points

Next, skim the material to form some idea of the difficulty (number of new terms, vocabulary, etc.), your familiarity, or your interest in the topic. Also, assess your physical and mental state. Place frequent action points if any of the above might contribute to a high frequency of distractions. (You may skip action points later on if you determine you set them too densely.) Your action points may be identical to the places in the material where you do your Recall in the Murder process. (You may have noticed that you need to do this more frequently in the middle of the passage).

Read until you reach an action point

Begin reading, coping with distractions as you encounter them.* Continue reading until you reach an action point.

*If you're distracted by thinking of something you need to do, place it on a checklist.

Check yourself at action points and act

When you reach an action point, check your understanding. If you feel you're doing O.K. (can recall the main ideas or whatever your criterion is), rate yourself "good" and go to the next paragraph. If you're not understanding as well as you think you should or you're feeling uncomfortable, see if you can determine a reason. If it's tension, do your breathing exercise. If other distractions are involved, use your self-talk (verbal or visual), and whatever else that will return you to your learning state.

Guidelines for Pairs

You will be helping each other challenge negative statements and attitudes. We are often better at dealing with other people's problems than our own. We probably all have a repertoire of "coping" strategies, i.e., coaxing, encouraging, etc. but we may not be able to apply these strategies to ourselves! Practice in pulling our strategies out to deal with our partner's strategies will:

1. show us the kinds of strategies we do have
2. give us practice in working on problems very much like our own.

Further, encountering any threatening or punishing experiences will clearly allow us to see the ineffectiveness of such strategies! Tell your partner when his suggestions are producing negative results i.e., increasing feelings, thoughts or behavior which are not conducive to the completion of your goal.

Follow the Concentration Management process discussed in class. When you reach an action point and begin to check your understanding, enlist your partner's aid. If you're not understanding as well as you should or are feeling distracted, describe your experiences to your partner, who will record it on your worksheet. You will tell your partner what you feel and what you said or thought to yourself about your distractions. Then, your partner will determine whether or not your thoughts were "constructive." He will tell you what you can think, say or do to cope. You will record this on the distraction worksheet. Then, you will continue with the task.

When you and your partner have successfully read through 3 action points, stop and discuss the experience. Take time to jot down on the worksheet the thoughts, images and actions which proved successful. Be sure to note those which were ineffective or inefficient. After you have finished this, reward yourselves!

Homework Assignment

Please use the Concentration Management technique this week. As you fill out the worksheets please note any insights or experiences which don't seem to be manageable. Next week you will be expected to turn in your distraction worksheets, task checklists, and the self-talk exercises.

The study of time perception has been somewhat neglected when compared with the study of other perceptual systems such as visual or auditory systems. The reason for this neglect is that no known receptor mechanism (such as the eye or ear) has been discovered for the time sense. Indeed, most perception textbooks completely ignore time perception when discussing sensory and perceptual processes. Nevertheless, it would be a mistake to conclude that time perception has not been studied. In fact, a rather large literature has accumulated.

Several different methods have been used to study time discrimination. In one of these, verbal estimation, the subject is asked to verbally estimate the length of an experimentally presented interval of time. The experimenter controls both the onset and offset of the interval to be estimated. In the method or reproduction the subject must be able to reproduce an interval of time after the experimenter has produced it.

Most studies of time discrimination involve rather short intervals, usually less than one minute. In general, human adults tend to overestimate short intervals and to underestimate long intervals. When the time intervals consist of auditory stimulation estimates tend to be longer when compared with estimates of visually filled time intervals. Accuracy of time discrimination also shows a developmental pattern with a steady increase in accuracy accompanying an increase in age.

Studies of subjective time. Studies of time discrimination are concerned with how accurately individuals can discriminate rather precise intervals of time. Studies of subjective time, on the other hand, are concerned with the degree of correspondence between "real time" and "private time." Private time seems to be easily disorganized during mental illness, drug induced "trips," or stressful situations. Several studies have shown that subjective time "slows down" during mental illness. Similar experiences of slow time have been described by persons under the influence of psychoactive drugs (hashish, marihuana, LSD) although this does not mean that persons under drug influence are in the same mental state as psychotics. Studies of sensory deprivation indicate that time distortion in one aspect of being in sensory deficient environments. In one experiment subjects were floated

in water for as long as they would tolerate the condition (the average subject quit after two hours). For most subjects there was a slowing of subjective time amounting to slightly more than one hour. Perhaps you have had the experience of being in a frightening situation and wondering why time was passing so slowly. Perhaps you were once sick because you drank too much alcohol and wondered whether you would ever feel well again. On the other hand, you probably have had many experiences when you were having so much fun that time seemed to pass very quickly.

Studies of time concepts. Studies of time concepts (yesterday, today, tomorrow) generally are developmental in scope. Ames found that there was a general developmental sequence in which children learn the words today (at 24 months), tomorrow (at 30 months) and yesterday (at 36 months). Moreover, children discriminate morning from afternoon by four years of age; time of day, the months, and seasons of the year by seven years of age; and the number of the day of the month by eight years of age.

Personality correlates of time. In normal people time orientation is very seldom disrupted. Even when clocks or calendars are not available most of us can make reasonably accurate estimates as to time of day or day of the week. Persons who are mentally ill, however, have much more difficulty with time orientation. Many studies have demonstrated that schizophrenics have serious disturbances in temporal orientation and in time perspective. One investigator has suggested that the behavior of schizophrenics is controlled by stimuli which are immediate; that is, the schizophrenic is controlled by the stimulus which occurs in closest temporal relationship to behavior. Thus, one might expect schizophrenics to be so easily distracted by environmental stimulation that they would have difficulty organizing a series of related concepts into correct temporal order. Analogous findings have been reported for the schizophrenic's ability to order events in the future. Thus, both time orientation and time perspective are disrupted in schizophrenic's ability to order events in the future. Thus, both time orientation and time perspective are disrupted in schizophrenics.

Studies of time perspective in children generally focus on personality characteristics such as need achievement and delay gratification. Collectively these studies have shown that (a) high achieving children have more highly organized future time perspectives, and (b) delay of gratification is positively related to high need achievement and intelligence and negatively related to cheating and acquiescence.

What Distracted You? Please Check ✓	What did you feel? ✓	What did you say to yourself?	Was it Constructive? (leads you toward your goal)	What could you have said/done?
Environment (Noise, Temperature) ____ *Tension/Physical Discomfort* ____ *The Material (Boring, Difficult)* ____ *Evaluating My Performance (Progress, time, pgs.)* ____ *Daydreams/Future Consequences (The test, G.P.A., etc.)* ____ *Other* ____	*Anxiety?* ___ *Frustration?* ____ *Fear of Failure?* ___ *Uncertainty?* ____ *Anger?* ____ *Other?* ____			
Environment (Noise, Temperature) ____ *Tension/Physical Discomfort* ____ *The Material (Boring, Difficult)* ____ *Evaluating My Performance (Progress, time, pgs.)* ____ *Daydreams/Future Consequences (The test, G.P.A., etc.)* ____ *Other* ____	*Anxiety?* ___ *Frustration?* ____ *Fear of Failure?* ___ *Uncertainty?* ____ *Anger?* ____ *Other?* ____			

Monitoring: Learning from Prior Tests

HOW TO LEARN FROM A TEST

After you take and get back a test you should always ask yourself one important question: "Why did I miss each question I lost points on?"

This technique is designed to help you do just that. It will help you find out first why you missed the question and, second, help you find ways of dealing with similar problems in the future. We feel it will help you to avoid making the same specific mistakes on future comprehensive tests in the same subjects. More important, though, it should help you to avoid the same kind of mistake on other tests in the future.

The general method we will use for teaching this technique will be to have you learn to fill out worksheets, consisting of 5 columns about your incorrect test questions. You will be asked to write down and ask yourself about the following 5 points:

1. Write down the questions you answered incorrectly.

2. Just what kind of question was the teacher asking?

3. To what general, overall class of problems did my mistake belong?

4. To what more specific problem area within the above general class did my mistake belong?

5. What corrective actions should I take in the future to avoid this problem again?

At this point, let's take up the above 5 points in detail. Refer to the practice worksheet included.

Incorrect Answer	Question Type	General Problem	Specific Reason	Correctives

INCORRECT QUESTION

The first column on the worksheet is quite straightforward. Here you simply list the incorrect questions from your test paper. "Incorrect", though, may mean two things. First, it may mean you got it wrong on the test, second, it may mean you got it right but only through luck. It would also be a good idea to list the second class of "incorrect" test questions too. In this way you'll receive maximum benefits from this strategy.

QUESTION TYPE

The next column on the worksheet requires you to decide just what kind of question the teacher was asking. We will ask you to classify each question 2 ways. First, what form was the question in: (a) multiple choice (b) true-false (c) short answer (one word to a sentence or two), or (d) essay (more than 2 sentences)? Second, just what level of knowledge, or comprehension, is the question asking for? We will break down questions into 4 categories. Below we will describe each category. Following the descriptions, examples will be given:

1. Does the question ask for verbatim, or word for word, knowledge of the material?

Everyone has seen this level of comprehension asked for in tests. When the correct answer is simply an exact repetition of words you have already seen, you are being asked to give an answer at this level, the verbatim level. At this level you can recognize the right answer without really knowing the material. Any question form may ask for this level although it is not common in long essay questions.

2. Does the question require paraphrased knowledge of the material?

Here either the teacher changes the words in the study materials into his own words, or he or she asks you to put what you know into your own words. The first alternative often occurs on multiple choice and true-false questions, the second often on essay and short answer questions. The key here is that you can recognize the right answer no matter how it is worded and phrased.

3. Does the question require integrative knowledge?

You have probably had test questions which asked how two different concepts you already knew related to each other. An example might be - "How do football and chess relate?" This is an integrative question. You probably have also often found that you may have known both concepts pretty well and still you were not able to see just exactly how they related to each other. As for other levels of questions, integrative level questions may be asked in any of the 4 forms, however, they are more commonly short answer and essay form.

4. Does the question require inferential knowledge going beyond the material?

Here the teacher asks a question which is not explicitly answered in the study materials, but which you should be able to answer if you know the principles described. An example of an essay inferential question would be, "Given the political situation in the early 1960's, would JFK have expanded the Vietnam War effort if he had lived?" By applying what you know of the political realities facing JFK, you make up an answer to the question even if you had never explicitly studied the point in your contemporary history class. Do not think that an inferential question must be in essay form, it can be found in any of the 4 forms, though it is common in essay questions.

This classification scheme will become important when you page through the guidebook to follow. By knowing what level of question you are dealing with, you can come a long way in figuring out where you went wrong. For example, you may have directed your studying towards knowing the meaning (i.e., paraphrase level) of the terms in the text but on the test what was wanted was word-for-word (i.e., verbatim level) definitions. You might have understood the material well, but just could not remember the exact words in the book. Here you would know that you problem was not comprehension, but rather a lack of memorizing and looking at the exact words in the book. To be sure you understand the above classification scheme, you will be given examples at this point.

Consider the following short passage and questions.

Prickles and Fantasias are two kinds of flowers that grow along the Uganda River. Prickles have long stems and red flowers while Fantasias have short stems and orange flowers. Scientists have determined that all long-stemmed flowers in this area have shallow roots and are gradually being washed away. Short-stemmed flowers, however, appear to have deep roots and are not being washed away.

Verbatim Question

"What color are the flowers of Fantasias?"

Answer: "Orange." This question is considered a verbatim question because the correct answer is given explicitly in the passage.

Paraphrased Question

"Describe one kind of flower found along the Uganda River."

Answer: "Prickles are one kind of flower found along the Uganda River. They have red flowers, long stems, shallow roots, and, as are all other plants with shallow roots, are being washed away."

This question is considered a paraphrased question because it asks the student to put what he knows into his own words or at least to change the organization of the passage when answering the question.

Integrative Question

"Compare and contrast Prickles and Fantasias."

Answer: "Prickles and Fantasias are both flowers that grow along the Uganda River. They differ in the color of their flowers (Prickles are red and Fantasias are orange), in the length of their stems (long vs. short), and in the depth of their roots (shallow vs. deep). As shallow-rooted plants, Prickles

are being washed away while Fantasias, with their deep roots, are not being washed away."

This question may be considered an integretive question because it asks the student to describe the relationships (in this case, similarities and differences) between two concepts (Prickles and Fantasias).

Inferential Question

"Which flower would you expect to be less common, the Prickles or Fantasias?"

Answer: "Prickles are probably less common than Fantasias since Prickles have short roots and are being washed away whereas Fantasias are not."

This question may be considered an inferential question since it asks you to use the information given in the passage in going beyond the information given -- in this case, a prediction was asked for.

Now that verbatim, paraphrased, integrative and inferential questions have been described and you have seen examples of each, read the following passage and indicate next to each of the accompanying questions what kind of question is being asked. When you have done this, check your answers against those provided at the end of the exercises.

MEMORY. An experimental demonstration of memory involves three stages: encoding, storage, and retrieval.

Encoding. The memory of everyday experience is for the most part effortless and involves little more than direct

1. List the three stages of memory described by the author.

Question type: _____

perception. Such direct encoding, however, is not usually sufficient for the retention of detailed verbal information, as is often required in memory experiments or in educational situations.

There are reputed to be a few individuals, rare among children and extremely rare among adults, who retain a complex visual display in a clear picture-like memory trace (eidetic image) for minutes or even days; but most persons lose such detailed visual information within seconds of the experience. In many situations, therefore, successful encoding requires that the perceived information be transformed into some more stable form. A skilled reader does not deal with a printed message on a strictly visual level; the visual pattern may be transformed into a pattern of sounds, into individual word meanings, and finally into highly structured thoughts.

Memory experiments have shown that subjects will use any or all of these levels of encoding, depending on the requirements of the task. The limits of memory are determined not by the amount of information presented, but by the number of familiar units, or chunks, into which it can be organized. Letters are remembered more easily than nonsense forms, words more easily than anagrams, and cliches more easily than unfamiliar sentences because letters, words, and cliches constitute chunks,

2. Scientists have found that simply glancing at something is enough to make it stick very well in memory:
True or False

Question type:

_____

3. An eidetic image is
a. An exceptionally clear picture-like memory
b. A murky picture-like memory
c. A meaningless picture-like memory
d. A memory from childhood

Question type:

_____

4. Give an example of memory failures due to failure to use the appropriate transformation in encoding.

Question type:

_____

5. Any one individual is likely to make use of only one level of encoding.
True or False

Question type:

_____

6. Limits of memory are determined by
a. age
b. difficulty of the information
c. the number of words
d. the number of familiar units

Question type:

_____

while nonsense forms, anagrams, and unfamiliar sentences do not. One can remember about as many cliches after a single exposure as one can remember random letters - yet each cliche is "information-rich" in that it stands for several words, numerous letters, and an extremely complex pattern of line segments. Since chunk formation depends on the familiarity of the unit, it can be considered an example of the positive transfer of previous learning to a new situation.

Once verbal information has been given a semantic interpretation, it can be transformed into a visual scene in which objects, rather than printed letters, are represented. The concrete idea expressed in the sentence "The boy ate the bee" is remembered far better as a vividly imagined scene than as a sentence. The retention-enhancing power of encoding in visual imagery was know to the ancient Greeks, but has only recently come under systematic experimental scrutiny.

Storage. This stage, which follows the encoding of a memory trace and precedes its retrieval, is particularly difficult to study because if adequate precautions are not taken, an experimental subject may rehearse. Rehearsal involves retrieval of the stored information and, possibly, further transformations of the form in which it is encoded. The effects of these operations are not easily separated from whatever passive changes in the

7. "Chunks" are
a. words
b. pictures
c. familiar units of information
d. sounds

Question type:

_____

8. Chunks are
a. information-rich
b. information-poor
c. neither of the above

Question type:

_____

9. Give an example of a chunk of information.

Question type:

_____

10. How are the concepts "chunk" and "visual image" related?

Question type:

_____

11. How might you apply what the author said about the memory-enhancing power of visual images to your own study?

Question type:

_____

12. When you repeat a telephone number to yourself to remember it, you are:
a. rehearsing the number
b. forming a visual image
c. retrieving the number
d. using eidetic imagery

Question type:

_____

memory trace might be characteristic of storage per se.

A question of current theoretical interest is whether there are two distinct processes involved in storage - short-term and long-term or only one. Proponents of the two-process view cite experimental evidence for a number of differences between the two: they are said to differ in capacity, in rate of forgetting, in the cause of forgetting, in the form in which the information is encoded, and in the susceptibility of the trace to disruption by injections, electrical shock, and blows to the head. Evidence interpreted as supporting the two-process view has come from work with amnesic patients and with animals, as well as with normal subjects.

Alternative interpretations on the various findings have been offered, however, and opponents of the two-process theory, encouraged by experiments seeming to support a one-process view, remain unconvinced. This controversy has been fueled in part by semantic confusion. Both terms "short-term" and "long-term" are often used to refer to experimental situations involving retention intervals as short as seconds and as long minutes or even days. Two-process theorists point out that "short-term memory" experiments very probably tap both hypothetical memory processes and not just the short-term processes, as some investigators have apparently assumed.

13. In what way might rehearsing information cause it to be chunked differently?

Question type:

_____

14. It has been determined that there are two distinct kinds of memory. True or False

Question type:

_____

15. Compare and contrast short-term memory and long-term memory.

Question type:

_____

Retrieval. One influence of the analogy between human memory and that of an electronic computer has been as increasing emphasis on the retrieval state as important for a complete understanding of memory. The fact that information that is in memory cannot always be retrieved is illustrated by the familiar tip-of-the-tongue phenomenon. The success of memory retrieval depends critically on the specificity of the cues that are available on the retention test.

Consider two common experimental situations, in both of which a list of words is first presented with test words and asked to indicate which ones were in the list. In free recall, the subject is simply asked to remember as many words from the list as he can. Recognition performance is typically much better than free-recall performance because the words themselves are available as retrieval cues. But free-recall subjects apparently construct their own retrieval cues, as is illustrated by the phenomenon called clustering. Semantically related words tend to be recalled together (in clusters) even when they were not presented together in the list.

Loss. A central problem in the study of memory is the analysis of the causes of forgetting. Early psychologists assumed that forgetting was due to time-dependent decay. Although some modern investigators attribute loss of short-term memory to

16. Johnny's teacher read the class the following definition: "An eskimo canoe made of a frame covered with skins except for a small opening in the center." Johnny knew that he knew the word defined but couldn't quite remember it. This is an example of:
a. chunking
b. retroactive interference
c. short-term memory
d. tip-of-the-tongue phenomenon

Question type:

_____

17. Recognition memory is typically much poorer than free recall memory. True or False

Question type:

_____

18. Given the following word list: BEAR, APPLE, CAT, FRUIT, ORANGE, DOG, PEANUT, ELEPHANT, HAMBURGER, how might a person who is showing "clustering" recall the words?

Question type:

_____

decay -- a matter of considerable debate -- it is now generally accepted that the most important cause of forgetting in long-term memory is interference from other, similar material. The effects of information stored prior to the encoding of the to-be-remembered material is called proactive interference; those caused by information stored afterward are called retroactive interference. Experimental findings suggest that proactive interference takes place primarily at the retrieval stage and is partly due to confusion regarding which memory traces are more recent. Retroactive interference, by contrast, appears to involve both storage and retrieval. The effect on storage seems akin to partial destruction of the memory trace during the learning of the interfering material.

19. The most important cause of forgetting in long-term memory is
a. decay
b. failure to rehearse
c. failure to encode
d. interference

Question type:

_____

20. Retroactive interference refers to
a. failure of memory due to interference from previously presented information
b. failure of memory due to subsequently presented information
c. failure to use visual images
d. none of the above

Question type:

_____

21. Give an example of failure of retrieval due to interference.

Question type:

_____

CORRECT ANSWERS:

1. verbatim
2. paraphrase
3. verbatim
4. paraphrase
5. verbatim
6. verbatim
7. verbatim
8. verbatim
9. paraphrase
10. integrative
11. inferential
12. paraphrase
13. integrative
14. paraphrase
15. integrative
16. paraphrase
17. verbatim
18. paraphrase
19. verbatim
20. verbatim
21. paraphrase

GENERAL REASON FOR ERROR

In the third column of the worksheet, your task will be to identify which of 5 general problem classes your trouble with the question is caused by. The 5 classes will be described in detail below.

1. You may go wrong through misinterpreting some part of the question. That is, you may miss a "not" or misunderstand one of the foils (i.e., wrong answers) in a multiple choice question. You may not see the exact viewpoint a teacher is asking for on an essay or short answer question and so answer something else entirely from what the teacher is asking for on an essay or short answer question and so answer something else entirely from what the teacher wanted. This will be called an interpretation problem.

2. You could also go wrong by realizing you really didn't look at or properly attend to, the relevant information while you were studying the text or listening to a lecture. This will be called an <u>attention</u> problem.

3. You could have missed the question as you really didn't understand or comprehend the specific point the question addressed. You may have looked at that specific point while you were studying, but just were not able to understand it completely and so went on through the material. This will be called a <u>comprehension</u> problem.

4. You may not have effectively stored the relevant information so that you could retrieve it when asked to on a test. You have certainly had the experience of knowing you knew the answer to something, but just were not able to call it up out of your memory. You probably said the answer was on the "tip of my tongue." Any problem of this sort will be called a <u>retrieval</u> problem.

5. You might not have pulled the right amount of information out of your memory. You might either have remembered so much you got lost or confused in too many irrelevant details, or so little that you didn't see the correct viewpoint necessary to answer the question. This is a common occurrence on true-false items as well as essay tests. If you think back, you probably can remember this happening to you on past tests you have taken. We will call this an <u>amount</u> problem.

SPECIFIC REASON

Within each of these general classes of problems, there are a large number of specific problems, one or more of which we think will be at least close to the exact problem you are having on particular questions. Following this introduction, you will find a guidebook in 5 sections--one for each of the general problem areas described previously. In each section a number of specific problems are described as well as possible corrective actions to take for each. We have not laid out an exhaustive list of all possible problems. What we have is what we feel is a comprehensive guidebook which should serve as a fairly complete roadmap describing major study pitfalls. The suggested problems and actions to try out should not be taken as always true for you, but rather as ideas you can tailor to your own exact problems, your own ideas of how to study, and just what seems to work out best for you.

The last column you will fill out will be the actions you take to (1) answer that question in the future if it is presented again and (2) lessen or eliminate that problem from happening <u>again</u>. Remember that your task is to improve your test-taking ability, not simply do the techniques suggested in the guidebook to follow. To insure this, always check to see if your corrective actions are actually working for you. If they are not, keep trying to improve your abilities by trying other methods we have suggested, or ones that you think up for yourself until you do solve your study problem. Again, the most important thing is to work at solving the problems you are having, so do not stay too long with methods that just don't seem to work for you. Try to find methods which do.

Now that you have had a chance to read about some of the general and specific problems discussed above and in the Guidebook, take a look at the worksheets on the following pages. These worksheets might have been done by a student that missed some of the test items over the passage concerning memory. You should look over these worksheets to get a better understanding of how to go about completing these worksheets for your own tests. You will notice that in some cases, the last column, "Correctives" has not been filled out. <u>You should fill out this column</u> for each incorrect test item. Look to see what general problem existed, and then, what specific problem existed. Using the Guidebook, figure out that the student might have done to avoid making the errors he made or what he might do in the future to keep from making similar types of errors.

Incorrect Answer	Question Type	General Problem	Specific Reason	Correctives
1. List the three stages of memory described by the author. Answer: a. short-term b. long-term c. ? Correct Answer: a. encoding b. storage c. retrieval	verbatim	misinterpreted question	misinterpreted the word "stages" to mean "types"	

Incorrect Answer	Question Type	General Problem	Specific Reason	Correctives
3. An eidetic image is a. an exceptionally clear picture-like memory b. a murky picture-like memory c. a meaningless picture-like memory d. a memory from childhood Answer: D Correct Answer: A	verbatim	retrieval	interference--I read somewhere that children are the only ones with eidetic imagery so I assumed eidetic images concerned childhood memories.	

Incorrect Answer	Question Type	General Problem	Specific Reason	Correctives
6. Limits of memory are determined by a. difficulty of the information b. age c. the number of words d. the number of meaningful units Answer: A Correct Answer: D	verbatim	attention	flyover--the first answer seemed right so I didn't even look at the others.	Always read <u>all</u> possible answers given on a multiple choice question, considering each one carefully.

Incorrect Answer	Question Type	General Problem	Specific Reason	Correctives
9. Give an example of a chunk of information. Answer: ?	paraphrase	comprehension	Although I basically understood that chunks are pieces of familiar information, I wasn't able to translate this into any concrete examples.	Spend more time during study generating examples and applications of concepts encountered.

Incorrect Answer	Question Type	General Problem	Specific Reason	Correctives
10. How are the concepts "chunk" and "visual image" related? My answer: Both are involved in memory. Correct Answer: A visual image may be considered a chunk of information.	integrative	comprehension	Although I understood both of these concepts, I just couldn't see how they fit together so I made up this incorrect answer.	Spend more time during study attempting to find the relationships that exist between various concepts in the passage.

Incorrect Answer	Question Type	General Problem	Specific Reason	Correctives
12. When you repeat a telephone number to yourself in order to remember it, you are: a. rehearsing the number b. forming a visual image c. retrieving the information d. using eidetic imagery Answer: C Correct Answer: A	paraphrase	attention	distraction - As I look back at the passage I see that I didn't even study the part of the passage dealing with rehearsal. This was probably because my roommate kept interrupting me.	

Incorrect Answer	Question Type	General Problem	Specific Reason	Correctives
20. Retroactive interference refers to: a. failure of memory due to interference from previously presented information. b. failure of memory due to interference from subsequently presented information c. failure to use visual images d. none of the above. Answer: A Correct Answer: B	verbatim	retrieval	interference - I got retroactive confused with proactive	

Incorrect Answer	Question Type	General Problem	Specific Reason	Correctives
21. Give an example of retrieval failure due to interference. My Answer: German class Correct Answer: Each time I learn a new word in German class, I seem to forget an old one.	paraphrase	amount	I didn't say enough in my answer. It didn't mean anything to anyone but me.	

Now that you have seen how the worksheets are to be used, you will be asked to use them in dealing with errors on tests you have taken. You should not allow yourself to be tied down or restricted by the categories of general and specific problems we have set up or by the corrective actions we have suggested. These are meant only as suggestive guidelines. Rather, you should feel free to expand the Guidebook so as to include problems and correctives which we haven't thought to include.

GUIDEBOOK FOR SPECIFIC STUDY PROBLEMS

Part 1: Introduction

This guidebook is intended to be a reference for helping you deal with specific study problems which you may encounter. It is not meant to be read straight through. Rather, you should look at those parts which seem most relevant to your own problems as pointed out by your problems on tests. Also, you might page through the book and look at the various study methods and strategies. Any which strike a responsive chord in your thoughts, you might try and see how they work.

The book is set up so that there is a roadmap to the rest of the book in Part 2. This roadmap points the way to where various problems will be discussed in Parts 3-7. It also contains key words which will help you remember the various techniques without having to page back to the full text of the technique. These key words will be included in the margins of the guidebook as a future aid to your reading of the material.

One last note: Do not take these methods and strategies as any sort of magic cure-all. What they consist of are simply techniques which good students report using. None of these methods will help your studying if you do not actually take the time to work with your texts to understand them. What we probably can offer are strategies to make your study processes more organized and logical so that you can get more done in the same amount of time.

Please tell us where we have suggested methods which really seem to help you and where we have suggested methods which just seem to flop when you try them. We are very much interested in improving this guidebook so that everyone can find something of value. Your compliments and especially your criticisms are therefore both sought and welcomed.

Part 2: Roadmap to Specific Study Problems

This guidebook is organized around the 5 general study problem areas laid out in your previous reading. Each problem area will be identified by a general statement which we feel typifies the feeling you have when you experience problems in the area. Following the general statement, many specific problems are laid out using more

detailed statements. After these statements, suggested corrective methods are given which you might find useful in dealing with the problem.

You should keep three things in mind in using this guidebook. First, try to identify just what your problem is. To do this, several things should be taken into account. (1) Is the level of the question (verbatim, paraphrase, etc.) appropriate to the problem you think you have? You probably don't need to worry too much about comprehension difficulties when you miss verbatim questions. (2) Does the statement given sound like what you say to yourself? (3) Do any of the suggested correctives sound as if they might be useful to you? (4) Are any of the suggestions things that you have never thought of doing?

Second, give the methods you try a good shot. Keep trying them for a period of time before you decide on their worth. You cannot expect to see much of a change in just a few minutes. Take, at the very least, a week to decide.

Third, do not hesitate to alter any of the suggested methods to fit your own situation. If you don't have a group of interested friends to talk to (as one of the methods given suggests), you might try talking into a tape recorder and then evaluate yourself later on playback. Be careful, though, that you do not change them in such a way that they no longer guide you to really learning your study material.

On the next few pages you will find an outline which will have all the statements - both of general and specific problems - that this guidebook deals with. It will also contain all of the shorthand statements about the methods in the margins. Use this part to help yourself remember what has been said here at some later time. In this way you will not have to read everything all over again.

Part 3: Interpretation Problems

General Problem: I MISSED THE QUESTION BECAUSE I MISINTERPRETED IT WHEN READING IT ON THE TEST.

Specific Problems and Suggested Correctives:

1. I SAW NO ALTERNATIVE INTERPRETATIONS AT THE TIME.
   a. *look twice*
   b. *paraphrase*

2. I SAW ALTERNATIVE INTERPRETATIONS AT THE TIME, BUT I CHOSE THE WRONG ONE.
   a. *interpret using other information*
   b. *indicate your point of view*

3. I STILL BELIEVE MY INTERPRETATION WAS VALID.
   a. *question teacher*

Part 4: Attention Problems

General Problem: I DIDN'T REALLY LOOK AT THE MATERIAL THE TEST QUESTION COVERED.

Specific Problems and Suggested Correctives:

1. THERE WAS SOMETHING ELSE NEAR THE MATERIAL THE TEST QUESTION WAS OVER THAT DREW MY ATTENTION.
   a. *beware, your attention may make you skip things*

2. THE MATERIAL SEEMED SO FAMILIAR THAT I SKIPPED OVER IT WITHOUT REALLY READING IT.
   a. *look for contradictions*
   b. *use different point of view*

3. I FELT MY EYES JUST GOING OVER THE MATERIAL WITHOUT REALLY READING IT. (WE CALL THIS "FLYOVER.")
   a. *can come form familiarity*
   b. *can come from lack of awareness*
      (1) *use understanding ratings*
      (2) *try to recall.what you've read*
      (3) *make up questions and try to answer them*

4. THERE WERE TOO MANY DISTRACTIONS AROUND FOR ME TO REALLY BE ABLE TO STUDY HARD AND WELL.
   a. *find a quiet place*

5. I WAS TOO DISTRACTED BY MY OWN THOUGHTS TO STUDY HARD AND WELL.

a. *take care of possible distractions*
b. *get up and stretch*
c. *do a relaxation exercise*

Part 5. Comprehension Problems

General Problem: I LOOKED AT THE RIGHT MATERIAL, BUT I REALLY DIDN'T UNDERSTAND IT IN SOME WAY. (THIS INCLUDES WHAT YOU WROTE ON THE TEST.)

Specific Problems and Suggested Correctives:

1. I DIDN'T UNDERSTAND THE VOCABULARY OF THE MATERIAL I READ.

a. *can happen in two places*
(1) *use information on test; define your viewpoint*
(2) *when studying use context, dictionary; know level of comprehension you need*

2. I DIDN'T REALLY UNDERSTAND THE WORDS I WROTE DOWN.

a. *do not try to impress*

3. I UNDERSTOOD THE CONCEPTS I WAS TALKING ABOUT, BUT I WAS LOOSE IN MY WORDING OF THE ANSWER.

a. *use simple direct sentences*

4. I COULD NOT UNDERSTAND THE SENTENCE STRUCTURE (SYNTAX) OF THE MATERIAL I WAS STUDYING.

a. *can be a test of your analytic power*
(1) *try paraphrasing*
(2) *study with a small group of interested friends*
(3) *mark "referring words" and what they refer to*

5. I JUST COULDN'T PUT TOGETHER WHAT THE AUTHOR WAS SAYING IN CERTAIN SECTIONS.

a. *find another easier text*
b. *look at concepts and relationships*
c. *make things concrete*
(1) *imagine yourself applying what you study*
(2) *make a diagram or picture; think about other possible diagrams and pictures*

6. 6. I COULD NOT SEE THE POINT OF THE ENTIRE PASSAGE I WAS SUPPOSED TO READ AND UNDERSTAND.

a. *it's a sign that you don't know what's important and is serious*
(1) *seek another viewpoint, ask teacher and tell what you do understand*
(2) *talk to interested friends; look and listen to their reaction*
(3) *try making analogies and checking them; analogies are important - try them*

Part 6: Retrieval Problems

General Problem: I AM SURE I KNEW THE RIGHT ANSWER WHEN I STUDIED IT, BUT I JUST COULD NOT REMEMBER IT ON THE TEST.

Specific Problems and Suggested Correctives:

1. I KNOW THAT I KNEW THE RIGHT ANSWER, BUT ON THE TEST I DREW A COMPLETE AND TOTAL BLANK WHEN I TRIED TO REMEMBER IT.
   a. *prepare better in the future*

2. I WAS JUST TOO ANXIOUS TO BE ABLE TO REMEMBER ANYTHING VERY CLEARLY.
   a. *prepare for a test and then let your slight anxiety help you; don't try to compare your feelings with others*

3. THE ANSWER WAS ON THE TIP OF MY TONGUE, BUT I COULDN'T QUITE GET IT WHEN I TRIED TO REMEMBER IT.
   a. *try thinking about something else for a while*
   b. *free associate to the question*
   c. *can you remember the circumstances under which you learned the information*

Part 7: Amount Problems

General Problem: I DIDN'T REALLY KNOW WHEN I HAD RECALLED THE RIGHT AMOUNT OF RELEVANT INFORMATION.

Specific Problems and Suggested Correctives:

1. I DID NOT REMEMBER ENOUGH BEFORE I ANSWERED THE QUESTION.
   a. *consciously ask yourself about clearness, completeness ("How"), and level of comprehension; use retrieval strategies in Part 6; try it, it helps almost everyone*

2. I REMEMBERED SO MUCH I GOT CONFUSED AND LOST TRACK OF WHAT I WAS DOING.
   a. *ask yourself about clearness, "how", and level of comprehension; then stop; if multiple choice or true-false, don't change without good reason*
   b. *jot down quick outline*

Part 3: Interpretation Problems

General Problem: I MISSED THE QUESTION BECAUSE I MISINTERPRETED IT WHEN READING IT ON THE TEST.

Specific Problems and Suggested Correctives:

1. I SAW NO ALTERNATIVE INTERPRETATIONS AT THE TIME.

look twice

a. You probably failed to see alternative interpretations because you were not looking for any. You should always look twice at a question before answering it to see if there are alternative interpretations.

paraphrase

b. It is always a good idea to put the question into your own words prior to answering it. Frequently this will lead you to better understand the meaning of the question and will reduce the incidence of misinterpretations.

2. I SAW ALTERNATIVE INTERPRETATIONS AT THE TIME, BUT CHOSE THE WRONG ONE.

interpret using other information

a. You should select the interpretation that makes the most sense based on the kinds of information emphasized by the instructor and textbook.

indicate your point of view

b. On an essay or short answer question, you should indicate as part of your answer, what you think the question was asking. In addition, you might indicate some of his other ways the question could be interpreted and how these interpretations could be answered.

3. I STILL BELIEVE MY INTERPRETATION WAS VALID.

question teacher

a. If you believe your interpretation of his test question was valid, you should indicate this to the instructor and explain how you arrived at the interpretation which guided your answer. You may obtain at least partial credit under these circumstances.

Part 4: Attention Problems

General Problem: I DIDN'T REALLY LOOK AT THE MATERIAL THE TEST QUESTION COVERED.

Specific Problems and Suggested Correctives:

1. THERE WAS SOMETHING ELSE NEAR THE MATERIAL THE TEST QUESTION WAS OVER THAT DREW MY ATTENTION.

beware, your attention may make you skip things

a. In our studying our attention is typically drawn automatically to three places. These are the first few sentences, the last few, and anything in the middle which is set off in some way or is especially relevant and important to you. This is both natural and good, however you should be aware of the fact that this can have bad consequences for your studying when it causes you to miss sections. How often have you seen something important out of the corner of your eye and skipped down to it? This is not bad unless you forget to go back and see what you have missed. The corrective action to take is very simple and straightforward in this problem. Simply be aware of these automatic processes in yourself and be sure that you do, consciously, look at portions of the material you might have skipped over.

2. THE MATERIAL SEEMED SO FAMILIAR THAT I SKIPPED OVER IT WITHOUT REALLY READING IT.

look for contradictions

a. Most of us tend to not really study material we think we are familiar with already. Sometimes this is all right, but at other times we have made the judgment that we know the material when we really do not. Therefore, one way to keep studying hard, even when we think we know the material well, is to look for contradictions between what you already remember and what is being said in the materials. You will often find that what you thought you knew was really not as clear in your mind as you thought.

use different point of view

b. Another way to help keep your attention on studying familiar material is to look at the material from a different viewpoint than you did when you first learned it. Try to find implications in the material you didn't think of before. Ask yourself questions that you couldn't have answered previously and see if you can answer them now. Keep looking for new bits of information that will help you integrate the ideas more fully now that you are reading it again.

3. I FELT MY EYES JUST GOING OVER THE MATERIAL I STUDIED WITHOUT REALLY READING IT. (WE WILL CALL THIS "FLYOVER").

can come from familiarity

a. One kind of flyover is the kind you get when you think you are really familiar with the material. You should try correcting this kind as suggested above.

can come from lack of awareness

b. Another kind of flyover is related to not really being aware of what you are doing while you are studying. We will suggest three ways which should help you become aware of how deeply you are really studying:

use understanding ratings

(1) Periodically simply rate on a scale of 1 to 10 just how well you think you have been understanding the material. It is surprising that often we "know" we are not studying well, but in the absence of a simple action such as this, or the next two, we simply do not break out of our inattentive state. If your rating is too low, of course, you should go back.

try to recall what you've read

(2) Periodically, you may try asking yourself to recall, without looking back to your notes or the book, just what the section you are reading is really about. It is not uncommon at all to find that you cannot say anything about what you just read. Again, if you find this happening, go back and restudy the sections you have flown over.

make up questions and try to answer them

(3) Periodically, while you are studying you might try making up questions on the material and see if you can answer them fully and completely. As before, it is not at all uncommon to find that you really cannot and you should go back over these parts of the material.

4. THERE WERE TOO MANY DISTRACTIONS AROUND ME FOR ME TO REALLY BE ABLE TO STUDY HARD AND WELL.

find a quiet place

a. In college, finding a quiet place to study can often be a real challenge. Outside distractions can be hard to cope with. Often the simplest solution is to simply get up and move away.

5. I WAS TOO DISTRACTED BY MY OWN THOUGHTS TO STUDY HARD AND WELL.

take care of possible distractions

a. Besides outside distractions, however, there are the distractions you create for yourself. How often have you sat down to study and been deluged with thoughts of doing everything else in the world but studying? One way to cope with this is to be sure that you have taken care of all your needs such as eating, going to the bathroom, chores you do such as getting letters out of the mailbox, sleep - if possible, and anything else that you might start thinking about when you sit down to study. In this way you will not be able to make the excuse to yourself that you really must get up and do just one little thing before I really sit down and study this time.

get up and stretch

b. Another way to deal with inside distractions, if they come after you have been studying for a while is to get up, move around for a few minutes and clear your head out.

c. Still another way to deal with inside distractions, either just as you are starting to study or later after you have been going for a while, is to do some sort of relaxation exercise. Close your eyes and count each exhale and inhale while you breathe in a relaxed way for a few minutes. Meditate if you know how to do it and enjoy it. Do anything else you know which relaxes you in short order that you can do without going too far from your books.

do a relaxation exercise

Part 5: Comprehension Problems

General Problem: I LOOKED AT THE RIGHT MATERIAL, BUT I REALLY DIDN'T UNDERSTAND IT IN SOME WAY. (THIS INCLUDES WHAT YOU WROTE ON THE TEST.)

Specific Problems and Suggested Correctives:

1. I DIDN'T UNDERSTAND THE VOCABULARY OF THE MATERIAL I READ.

a. This can happen to you in 2 places - in the study materials or on the test itself.

(1) When it happens on a test, usually all you can do is try to use the context of the surrounding words to help you define the word that is confusing you. Sometimes, though, you may find that the word is defined elsewhere in the test. If so, make use of the definition on the question that you were having trouble with.

use information on test

It can also happen that a test question is confusing or ambiguous in some way. On essays and short answer questions you can help yourself by very clearly defining the viewpoint you are taking in answering the question so that the teacher can easily see exactly what you are trying to answer.

define your viewpoint

(2) When you don't understand something in the study materials, you may use context as above, but you have many further options to take also. Don't ever feel bad, as some students do, about looking up a word in the dictionary. It is far more efficient to take the time to look up a word you don't know than it is to miss it later on a test.

Take into consideration the level of comprehension you desire to have for a new term. Do you simply want or need to know the book definition or do you need to know it well enough to relate it to all the other important terms in the chapter? Knowing what you need will help you be more efficient in your studying. Always study <u>at least</u> up to the level of comprehension you will be asked for on a test.

2. I DIDN'T REALLY UNDERSTAND THE WORDS I WROTE DOWN.

a. This is only a problem on short answer and essay questions and is only different from the above vocabulary problems when you intentionally use words you are unsure of to display your lexical, syntactic, and literary erudition in the aforementioned evaluative situation. In other words, teachers find almost nothing more foolish than large words used wrongly simply to make an impression. This is not a problem at the verbatim level of understanding. When answering a question at any of the other levels, however, you should be aware of this if it starts coming out in your answers.

3. I UNDERSTOOD THE CONCEPTS I WAS TALKING ABOUT, BUT I WAS LOOSE IN MY WORDING OF THE ANSWER.

a. This problem often makes you look like you really don't understand the material. There is a clear difference, however, between not knowing <u>what</u> to say and not knowing just <u>how</u> to say

it. There is also a difference in what you should do as a corrective measure in the two cases.

use simple direct sentences

The best thing, usually, to do when this is your trouble is to make your sentence structure as simple and directly to the point as possible. Cut out everything that is not directly necessary to answer the question asked. The key is to put down your main ideas in simple, direct language and then support your ideas with some further statements. Then quit writing and go on to other questions. If you do this you will find that you will answer questions better in fewer words. This helps you save time for other questions and allows you to do a better overall job.

4. I COULD NOT UNDERSTAND THE SENTENCE STRUCTURE (SYNTAX) OF THE MATERIAL I WAS STUDYING.

can be a test of your analytic power

a. This problem is very often the problem of the author, not of the student. However, it is an unfortunate fact that at times in college you are called upon to understand poorly written and very complex material. In fact, you may have already noticed that teachers often ask true-false and multiple choice questions taken from the most complex and ambiguous parts of the study materials. They do this specifically to test your analytical skills. We will suggest 3 strategies to help sharpen you analytic abilities. All are designed to help you to get in to the material and break it down into understandable parts. Then you will put the parts together and see if they equal the whole the author seems to be talking about. The 3 strategies are as follows:

try paraphrasing

(1) You might try paraphrasing. In this technique, you study the complex parts of the material for a time and then try to write up just what the material is saying in your own words point for point. Do your paraphrase in direct, fairly simple language. After you have done so, go back and check your paraphrase, both point by point and as a whole, against the material as written in your study materials. Keep rewriting until the ideas in your paraphrase and the ideas in the text match - except for the fact that your ideas are much more clearly stated. These paraphrases help you write essays and short answer questions much more easily.

study with a small group of interested friends

(2) You might try reading the complex parts of the material aloud to yourself or to others. Many people do the first - reading aloud to themselves - all the time. The second suggestion is even more powerful, however, and it is a good idea to make group study a regular part of your schedule.

There are two keys to understanding operation of this strategy. First, people seem to be able to understand more complex sentence structure through hearing it as opposed to seeing it. Second, discussing complex material point by point until the whole meaning emerges is often the quickest way for an individual to see all the different meanings that some section of material may contain. You should note that reading aloud, though it takes a greater amount of time than most other strategies, improves comprehension at all 4 levels of understanding we laid out. Hearing something improves your verbatim knowledge, saying and discussing paraphrases improves your paraphrase level of understanding.

Discussing how each point fits in to the whole improves your integration level of understanding. Inferential understanding may be increased also by discussions in a group as persons typically use examples to get their point across to others. These examples are usually inferential in nature, if you examine them closely, since they describe how the concept would apply in various situations.

mark "referring words" and what they refer to

(3) Often you will find that complex material is made even more complex when an author uses a large number of pronouns to refer back to previous arguments and concepts. "Pronoun" here means not only words such as "his", "hers", "theirs", etc., but also words as "this", "that", "some", and many "referring words." The point is that in some material, so many "referring words" are used that the sentences lose their meaning for the simple reason that there is nothing concrete being stated any more. Probably the easiest strategy to employ when this happens is to simply write over the pronouns in the text with a few words that will describe to you just what the pronoun is really referring to. In this way you will not need to keep looking back and forth through a whole section as you are trying to understand one sentence. Rather, the information will be right where you need it - inside the confusing part. If you still have trouble, try one of the above two strategies.

5. I JUST COULDN'T PUT TOGETHER WHAT THE AUTHOR WAS SAYING IN CERTAIN SECTIONS.

a. This is basically a problem in integration. It may affect questions at other levels, but the integration level of comprehension is impossible to reach if you cannot put the sections of your study materials together and tie them

up. When this happens, first make sure you understand the vocabulary and sentence structure the author is using. If you are sure you do, then try reading other accounts of the same concepts in other books. See if you can find a slightly more elementary book on the subject. With your extra knowledge, go back to the text you were having trouble with and see if now you understand the problem sections. If you don't, your problem is probably not simply that you can't put a small section of the material together, but is more probably one of the earlier problems in this same general section of problems. Refer especially to the 3 methods described in Section 4 just previously.

find another, easier text

b. Sometimes the problem you are having when this happens is that you cannot see the exact relationship the author is using to tie up his thoughts in a certain section of his text. This problem will be treated in detail later in the workshop you are now taking.

look at concepts and relationships

Right now, we will suggest that you be aware that authors lay out their ideas in terms of concepts and the relationships which exist between them. When you are studying, always try to regain both of these for yourself. Get familiar with all of the concepts the author lays out to describe what he is talking about. Then study just how each concept relates to other concepts. If the author is saying that a college is a "diploma mill," you should try to understand that he or she is trying to say that the school is like a factory - it takes in raw materials and spits them out as finished products that have no respect for learning. They merely have a "sheepskin."

All materials are organized in this way. It is a good practice to unravel the system of relationships and concepts in the text for yourself by thinking about how one concept in a section relates to other concepts in the same section.

c. One further block that can keep you from understanding a section of your study materials is when you have trouble making the words concrete - or real and down to earth - for yourself. When this happens, it is very easy to get confused on questions which are not at the verbatim level of understanding. If the teacher asks you to paraphrase, integrate or infer from the words you have read, you will find the process much easier if the words have a real, concrete meaning for you. We will suggest two methods which might help you get from an abstract set of material to a more concrete set of ideas you can understand:

make things concrete

(1) One way to get material to be more real for you is to imagine a situation in which you are applying the knowledge you have gained. Make the situation as concrete as possible. If the material is genetics, try to imagine yourself as a counselor outlining alternatives for couples contemplating having children. If the material is on political history, put yourself into the role of having to make similar decisions in the same types of situations as the original governmental leaders did. When you do this pay particular attention to the things that you aren't really sure you know how to do. This kind of exercise is helpful in preparing for inferential questions as it forces you to infer from what you know to some specific situation.

imagine yourself applying what you study

make a diagram or picture

(2) You might try to draw diagrams or pictures of sections of material that are too abstract. As in the above strategy, the idea is to force you to come up with one specific representation of the abstract words that will help you deal with that section of material in the future. Don't hesitate to come up with more than one diagram or picture of the material.

think about other possible diagrams and pictures

Some abstract concepts, "poverty" for instance, have many different representations depending on the area of the world you are talking about and the period of history you are considering. What is poverty to us, has almost nothing in common with what was poverty to the ancient Greeks. Things the poorest of families have today were totally unobtainable by the ancient Greeks and so we judge what is and is not poverty by very different standards. You must make sure, in coming up with some specific representation of an abstract concept, that you do not blind yourself to other possible representations. This is only a minor problem in coming up with diagrams, however, and is only mentioned so that you will be aware of it.

6. I COULD NOT SEE THE POINT OF THE ENTIRE PASSAGE I WAS SUPPOSED TO READ AND UNDERSTAND.

a. In some ways this problem is related to the previous problem except that it is more serious. It is much harder to recall what is in a passage that you simply cannot see the point of than it is to recall material from a passage that makes sense to you. Levels of knowledge higher than the verbatim level are also very hard to attain when you can't see what the author is driving at. The most important thing to realize about this problem is that

is a sign that you don't know what's important and is serious

it is an immediate sign that you have not yet seen the important aspects of the material or you have seen them but not identified them as important. The problem you are up against is analogous to that of trying to put together a jigsaw puzzle when you don't even know what the picture looks like. The things we will suggest should enable you to figure out the borders of what the material is trying to say and also give you some idea of what the picture inside should look like when it is put all the way together:

seek another viewpoint

(1) This problem is, as was just stated, quite serious. It is usually based, however, on the inability to identify the important parts of the material, and see the links between them. Putting these two facts together, you should see that what you might need most is another viewpoint which will allow you to see the overall structure of the material and the relations of the parts. The best source for this information is probably your professor or teacher. It is his job to know the best viewpoints from which to look at the material they present and then to teach these viewpoints.

ask teacher and tell what you do understand

Don't, however, simply go to the teacher and say that you don't understand anything about the material. Rather, regenerate, or paraphrase, as much of the material as you can in the context of asking him or her. This does at least three things. First, it allows the teacher to make a quicker diagnosis of the viewpoint you have which is causing all of the trouble. Second, it shows the teacher that you can benefit from what he or she has to say in that you have at least seen all of the relevant points in the

material even if you have not fully comprehended them. Lastly, it will put you in the frame of really thinking about the material and you will benefit more from what the teacher has to say. Don't ever be afraid to ask your professors about problems of this kind even in the most crowded of classes. If not dealt with, this type of problem can grow and ruin a whole semester's work.

(2) It may be that you should discuss the material with other students. As we mentioned in another section of this guidebook, there is probably no other device more helpful than discussing the material you are trying to learn. It is important to do two things in a group study session. First, try to state ideas even when you are unsure of yourself. In fact, it might even be said <u>especially</u> when you are unsure of yourself. Second, watch others reactions to your ideas and listen to what they say about them. Confusion on the part of others indicates one of two things - either you are not saying things clearly, or they are confused themselves.

talk to interested friends

By stating and restating your ideas, and by listening carefully to others' ideas and their reactions to your ideas, you can gain far more understanding of how well you really know the material than by studying alone. Other students provide differing viewpoints from which to look at material, many of which the teacher and text author have not seen. When we say the word "group" we do not mean you should try to study with a large number of people. Usually one or two other students who are both interested in the same material and easy for you to get along with are enough.

look and listen to their reactions

try making analogies and checking them

(3) A last technique you might try is to make up an analogy to the material which is confusing you. By "analogy" we mean try to find something you know well which seems to operate "just like" the ideas in the material as well as you understand them. An example of an analogy was provided in the introduction to this section. If you were not sure of what the jigsaw puzzle analogy meant, the whole point of the introduction probably (or at least hopefully!) became clear to you all of a sudden. Try making various analogies. Some analogies you might try to make that the ideas in the passage might be "just like" are: (1) driving; (2) swimming; (3) football; (4) a computer; (5) a path through _____ (some kind of terrain); (6) the ocean; or anything else that comes to mind.

Then, once you have made the analogy, comes the important part for making things more clear: Try to think of things which are true for the analogy and see if they are true for the material. In the example used in the introduction, you might say, "When I know what the shape of the outside of a jigsaw puzzle is like, I can search for the border pieces and fit them together first." How does that relate to the methods we have suggested? Well, once you have found a correct viewpoint from which to consider the material, identifying the most important material in the section becomes much easier. Continuing with the analogy, once you have the border (important points) all together filling in the middle pieces (supporting evidence) becomes a tedious, but possible task to perform. The way to a solution is clear at that point.

analogies are important - try them

Analogies form the basis of much of the ways all of us explain things to each other. This trick, though sometimes hard to do, merely extends the explanatory power a little farther. Instead of stopping with the point that something is "just like" something else, we are suggesting that you go on and ask yourself, "If that is true, what <u>else</u> must be true?"

Part 6: Retrieval Problems

<u>General Problem</u>: I AM SURE I KNEW THE RIGHT ANSWER WHEN I STUDIED IT, BUT I JUST COULD NOT REMEMBER IT ON THE TEST.

<u>Specific Problems and Suggested Correctives</u>:

1. I KNOW THAT I KNEW THE RIGHT ANSWER, BUT ON THE TEST I DREW A COMPLETE AND TOTAL BLANK WHEN I TRIED TO REMEMBER IT.

prepare better in the future

a. This problem bridges the gap between comprehension problems and retrieval problems. It occurs usually because you did not study the information long enough or efficiently enough to really fix it in your head. There is probably not very much you can do while in the testing situation to remember material when you draw a complete blank on it. The most important thing to do is to prepare for future tests in such a way that it will not happen again. If your problem is due to anxiety see the suggestions given next.

2. I WAS JUST TOO ANXIOUS TO BE ABLE TO REMEMBER ANYTHING VERY CLEARLY.

a. Sometimes we draw a complete blank on a question due to the fact that we are extremely anxious about taking tests. This is not a problem that can be cured by simply reading a

prepare for a test and then let your slight anxiety help you

corrective suggestion, but there are things you can do to overcome test anxiety. The first thing to realize is that there is an optimal, or best, amount of anxiety to carry into a test. Being too unanxious can hurt performance on a test just as much as being too anxious. You operate best when you are aroused and anxious to some degree. This should suggest to you that you not be afraid and think you are not being normal when you feel anxiety coming on before a test. Instead, tell yourself - in complete honesty - that you need to be slightly anxious to perform well. What you want to do is get yourself into a slightly anxious state and then not worry about the fact that you are anxious. It is this second worry that makes many people so anxious they forget everything. Second, prepare well for a test. Don't give your anxiety something honestly true to worry about. It is much easier to tell yourself that you needn't worry, if in fact this is true. These two techniques have basically one objective - to help you be anxious to the right degree so that you can perform at you best. There are many other techniques for helping to control test anxiety, notably relaxation techniques, but the above two are probably enough for most people if they are followed.

don't try to compare your feelings with others

One last thing that you should realize is that you should never compare your feelings before a test with those you think others have. What you invariable end up doing is comparing yourself with others. The very person you think is cool, calm and collected, probably feels exactly the same inside as you do. In fact, in talking to people you will often find two people who say they are too anxious and wish

they were like the other person. When you see this happen consistently, you should wonder how good people are at comparing their emotional state to that of others. The fact is that people are notoriously bad at this.

3. THE ANSWER WAS ON THE TIP OF MY TONGUE, BUT I COULDN'T QUITE GET IT WHEN I TRIED TO REMEMBER IT.

try thinking about something else for a while

a. One strategy for overcoming this problem is to leave the question, move on to other questions, and come back occasionally to the problem question. Sometimes the answer will pop into your mind if you quit thinking about it for a moment. Other times some other question on the test will "trigger" your memory.

free associate to the question

b. It is also helpful to read the problem question and "free associate" about it. That is, just start talking to yourself about the question and its possible answers. Try thinking two things. What is the first thing that comes to mind when you read the question? What does this in turn bring to mind? Sometimes you will jog your own memory as you talk to yourself in this fashion.

can you remember the circumstances under which you learned the information?

c. It sometimes helps to think back to the situation in which you studied the information that you are now unable to remember. For example, where was the information located on the page or in your notes? Did you write it down anywhere? What came before and after the information? Where were you and what time was it when you encountered the information? Did the instructor say anything about the information?

Part 7: Amount Problems

General Problem: I DIDN'T REALLY KNOW WHEN I HAD RECALLED THE RIGHT AMOUNT OF RELEVANT INFORMATION.

Specific Problems and Suggested Correctives:

1. I DID NOT REMEMBER ENOUGH BEFORE I ANSWERED THE QUESTION.

a. On essay and short answer questions this problem leads to incomplete and insufficient answers. On true-false and multiple choice questions, this leads to an inability to clearly see the correct answer.

consciously ask yourself about clearness, completeness ("how?"), and level of comprehension

We suggest that you do two things when this problem affects you. First, judge how completely you have remembered the material while you are taking a test. A Are all the relationships you have recalled clear? Do you see how you can get from one concept to another? An example of this would be the statement "poverty causes crime." Simply writing this down on an essay is incomplete. The important part is how poverty might cause crime. Finally, ask yourself what level of comprehension the question requires and see if you have recalled to that level. It is important to explicitly ask yourself these questions before you start writing - though you need not spend too much time considering them. Second, use the recall strategies described in Part 6 if you find you need to broaden your knowledge before you answer the question.

use retrieval strategies in part 6

try it, it helps almost everyone

This strategy is good to try even if you feel you do not have great problems in this specific area. Spend a few seconds thinking about how you will answer a question before you write anything down. You will find yourself rewarded. Of course time pressure may force you to only think for a few seconds. However, you will find that spending those few seconds will save you far more than you spend.

2. I REMEMBERED SO MUCH I GOT CONFUSED AND LOST TRACK OF WHAT I WAS DOING.

a. This is a problem for many people that affects their performance on all types of questions at all levels of comprehension. How many times have you changed an answer on a true-false question because you kept remembering more and more irrelevant details. How often do you write too much on an inferential essay question and answer poorly because you lost track of what you said.

ask yourself about clearness, "how", and level of comprehension

We suggest that you make the same sort of judgments in this case as you would in the previous problem above. Ask yourself if things are clear, if you know how to explain the steps between one concept and another, and if you are sure you are answering at the correct level. Take a few seconds to think about your answer. When you find you can answer these questions, stop thinking about the question and start writing or mark your choice.

then stop

if multiple choice or true- false, don't change without good reason

Research has long shown that your initial impression on multiple choice and true-false questions is right more often than it is wrong. Therefore, don't change what you put down unless there is a good reason to do so.

b. Another method you might try is to simply jot down a quick outline to yourself. This is especially effective for essay type questions at the integrative and inferential level. The major value in this procedure is that you can detect your own mistakes before you waste large amounts of time.

jot down a quick outline

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